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Social cognition in childhood

The relationships between Attachment-related representations, Theory of Mind and Peer Popularity

Redfern, Sheila

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**Social Cognition in Childhood: The Relationships between
Attachment-related representations, Theory of Mind and Peer
Popularity**

Sheila Redfern

Thesis submitted for the degree of Doctor of Philosophy

Institute of Psychiatry
King's College London
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ABSTRACT

Children's ability to understand the thoughts, feelings and intentions of other people, is an essential skill for their social interactions with peers and family members. Research has shown that although most young children will have developed a 'theory of mind' or ability to 'mentalize' by the time they are around four or five, there are individual differences in children's understanding of their social relationships. This thesis explores two alternative models of children's social cognitive processes that are thought to underlie their social interactions and uses a measure of peer popularity as an indicator of how they are functioning in their social world at school. Research findings from the perspective of children's theory of mind and attachment theory have been significant in shaping our understanding of social cognitive processes and individual differences in social competence. However, because research on these constructs derives from largely separate research perspectives, it is not clear what connections there are between these two models of social cognition, or if their influence on children's social competence is distinct or overlapping.

Participants were primary school children, ranging from 3- to nearly 8-years-old and were assessed in two main studies at different time points to investigate these alternative models of children's social cognitive processes. The results from study 1 indicated that the coherence of the attachment representations measure (MacArthur Story Stem Battery) namely 'story organisation' was strongly and directly associated with peer acceptance but that the link between theory of mind and peer acceptance was indirect. In study 2, measures of attachment-related representations were found to be associated with theory of mind skills at baseline and follow up, but this was no longer significant once verbal ability was controlled for. Children's disciplinary attachment-related representations were found to be associated with teacher-rated problems amongst peers. Also, positive attachment-related representations were found to be associated with teacher-rated pro-social behaviour. Theory of mind, as expected, was found to improve with age and performance at baseline was associated with later performance on these tasks. Verbal ability was found to be significant in children's performance on theory of mind tasks in all studies. The

findings in this thesis raise interesting questions about what narrative coherence means in children's descriptions of their attachment relationships. How this relates to children's verbal skills, conversations within the family and the way children conceptualise relationships in general is worthy of more detailed study. Clinical implications are drawn from the findings, particularly in relation to the recent developments in Mentalization Based Treatment interventions and the findings lend some support for the use of this intervention with children with poor attachments.

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CHAPTER ONE - SOCIAL COGNITION

1.0 Chapter Overview

One of the most fundamental questions underlying the study of human social development, and indeed psychological development in general must be how do we come to understand other people? Children's capacity to think about why other people behave the way they do, and to think about and understand how they feel, and think, particularly in relation to other people, is central to human development. Without an understanding of others there is no scope for developing a social self, and from the attachment theorists' perspective of early development, there would appear to be no ability to understand the self without an understanding of others. It is through the capacity to think about others' feelings, perspective, thoughts and attitudes that children are able to engage in family relationships, friendships, play with peers and generally to communicate and connect with others. However, the course of the development of this capacity in children is strikingly individual (Dunn and Brophy, 2005; Astington & Jenkins, 1999). Individual differences in children's understanding of others can be observed in their behaviour, quality of their relationships and in the things they say about their peers and family members. Given such variability between individuals, an important question therefore is what accounts for these differences amongst individuals in their capacity for social cognition?

In this chapter the different accounts of social cognition in childhood are explored, with particular emphasis on the key constructs in this thesis; attachment and theory of mind. Arguments are set out for the importance of studying these particular constructs and in the summary to this chapter, a model is put forward for the studies which were devised after reviewing the literature in the field of social cognition. First, there follows a review of the different theories of social cognition.

1.1. Different theories of social cognition

Attachment and psychoanalytic theorists have been arguing for a considerable time that it is only in having his own mind and behaviour reflected back to him by the mother that the young infant can come to infer that he has a mind of his own that is separate from that of his mother, and that she in turn has a mind that can understand and reflect his own thoughts and behaviour. From this perspective then, the developing capacity to understand others is rooted in early interactions. It is this process that is understood to underpin what has been termed ‘mentalizing’. An enduring question in developmental psychology is how features of the parent-child relationship affect children’s social development, including relationships with peers. Positive parent-child interactions influence peer popularity (DeMulder, Denham, Schmidt, & Mitchell, 2000, Booth-Laforce et al., 2006, Harris et al, 1994; Ladd & LeSieur, 1995). In psychodynamic research the child’s relationships with the primary ‘objects’ (the parents) have an influence on the child’s capacity for relatedness and success in individuation because being loved while being treated as a separate individual whose love is valued influences the child’s “optimism regarding the likelihood of mutual love between differentiated people” (Greenberg and Mitchell, 1983). The question of whether this first attachment relationship is the most significant factor in children’s developing understanding of others, or whether this skill develops during the early years as a result of many other factors in early cognitive development, is a theoretical one that will underpin the whole thesis. It is examined from the perspective of analysing children’s attachment-related representations in a series of studies.

In this first chapter the research evidence is explored from two different perspectives on how children conceptualise their social world and relationships with others, specifically with an emphasis on how children are rated by their peers. The first perspective is that of attachment theory, and the second is from the cognitive developmental world of Theory of Mind (ToM).

1.1.2 Factors that contribute to the uneven development of social understanding in normal development.

In order to address the important question of why the course of development of social cognition is so different amongst children, it is first important to look at the many factors that have been studied in relation to social understanding. There are many constructs that are examined in the literature in relation to non-clinical development in children. Sharp and Fonagy (2008) provide a useful map of the social cognitive constructs most commonly investigated over the last 20 years in relation to children and young people aged 0-18 years.

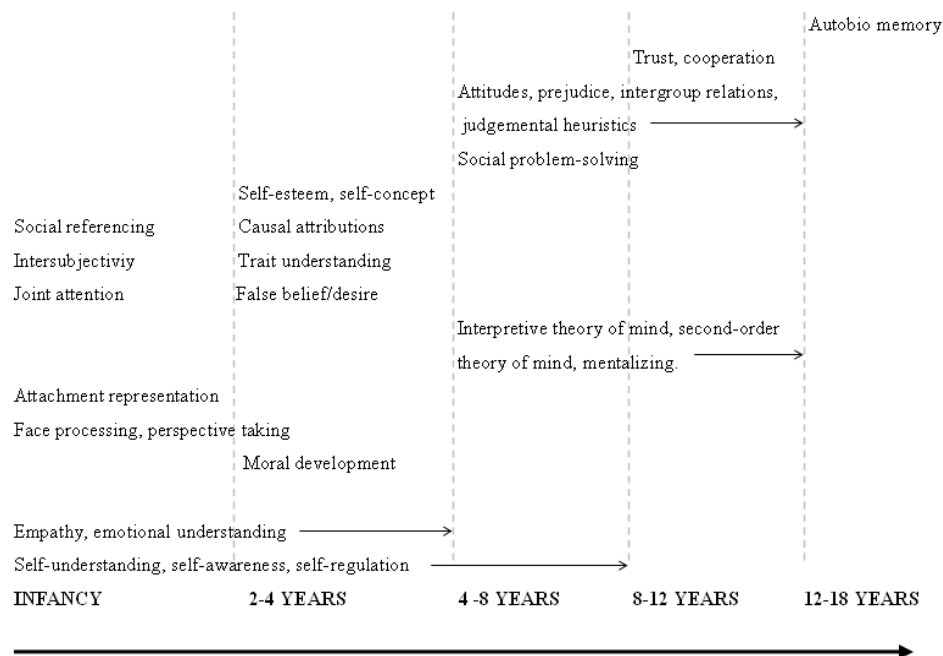


Figure 1.1 Social cognitive constructs most commonly studied in relation to non-clinical development (Sharp and Fonagy, 2008).

Research findings from the perspectives of children's TOM and attachment theory have been significant in shaping our understanding of social cognitive processes and individual differences in social competence (Astington, 1994; Bretherton & Mulholland, 1999; Cassidy, Kirsch, Scolton, & Parke, 1996; Dunn, 1996; Shantz, 1983; Sroufe, Egeland, & Carlson, 1999). However, because

research on these two constructs derives from largely separate research perspectives, it is not clear what connections there are between these two models of social cognition, or if their influence on children's social competence is distinct or overlapping. As Figure 1.1 shows, social cognition consists of multiple concepts, but it remains unclear how these different cognitive constructs relate to each other. Does a deficit in one construct equate with a deficit in another construct at the same developmental stage? For example, does a child who fails a theory of mind task also have deficits in empathy, poor self-awareness and limited concern for the well-being of others? The question is whether social cognition should be regarded as a domain-general or a domain-specific capacity? Examining social cognition within a developmental (ToM) and familial (attachment theory) framework permits an exploration of how the two constructs are related to one another, how much they relate to individual differences in the outcome measures of social competence (peer popularity in this thesis), it allows for an examination of how these constructs are developed, and finally furthers the discussion of how these approaches can be used to study children across all age ranges in the clinical population.

An underlying aim of the studies presented in this thesis is to look at how relevant these constructs of social cognition are to studying the clinical population, and furthermore to consider the best treatment approach that has these theoretical perspectives in mind.

Cognitive factors are one class that researchers have found to correlate with social cognitive performance and these factors include language (e.g., Astington and Jenkins, 1995; Cutting and Dunn, 1999; Perner and Lang 1999) and executive functioning (e.g., Perner and Lang 1999). There are other cognitive factors such as creativity (Suddendorf and Fletcher-Finn 1997) and fantasy (Taylor and Carlson 1997) that are also thought to correlate with social cognitive performance.

The second class of factors that is thought to correlate with social cognitive performance is family variables (de Rosnay and Hughes 2006). Studies

demonstrating correlations in this area have included those focusing on family talk about mental states (Dunn et al, 1991), the number of older siblings (Perner et al, 1994), maternal mind-mindedness (Meins, 1997), maternal reflective functioning (Fonagy et al., 2002), accurate maternal mentalizing (Sharp et al, 2006), attachment security (Fonagy et al, 1991, 1997), and socio-economic status (Holmes et al., 1996)

The third class of studies that have focused on seeking to explain individual variability in social cognitive performance have examined various social outcome measures such as the quality of children's peer relationships (Sutton 2003) and socially competent behaviour (Wilde-Astington 2003). Results from these particular studies have found correlations but are so far not able to draw any conclusions about the direction of influence between these variables and social cognitive functioning.

1.1.3 Other factors relating to individual variations in social cognition

There are a number of factors that are not measured in this thesis which pertain to individual variations in social cognition in children. These include genetic factors and personality traits. Children's temperaments are relevant in relation to positive interactions between friends, for example, and may be as or more relevant, than early attachment relationships in terms of interactions. Numerous factors which have not been examined in the present thesis have been associated with children's peer acceptance, including attractiveness, athletic ability, aggression, sociability, and withdrawal (Newcomb, Bukowski, & Pattee, 1993; Vannatta, Garstein, Zeller, & Noll, 2009). Temperament has been recognized as an important factor in general social functioning and competence, including behaviour with peers and peer acceptance for preschool to primary school children (Eisenberg et al., 2003; Stocker & Dunn, 1990; Lengua, 2003). The association between temperament and social functioning has been examined to test out the conceptual model that linkages between a child's temperament and their social acceptance are mediated by social behaviour (Sterry, Reiter-Purtill,

Garstein, Gerhardt, Vannatta, & Noll, 2010). These authors suggest that a child's temperament first affects social behaviour with peers (i.e., leadership, prosocial behaviour, aggression, withdrawal), and it is this impact on social behaviour that leads to a child's acceptance or rejection by peers. In interpreting the results of the studies in this thesis, it should be noted that temperament was not accounted for.

This thesis aims to pull together these three classes of factors in seeking to look at the relationships between one cognitive (ToM) and one environmental (attachment) factor and the studies set out investigate if any one factor emerges as having a greater influence on the social outcome measure of children's peer relationships. There is also an analysis of the associations between these factors of social cognition and children's behaviour, including both prosocial behaviour and problematic behaviours (e.g., problems relating to conduct and hyperactivity).

Under the direction of the National Institution of Child Health and Human Development (NICHD), a large scale study examined the relationships between early infant-mother attachment and children's social competence and behaviour problems during the pre-school and early school-aged period (NICHD, Early Child Care Research Network, 2006). More than 1,000 children were assessed on measures of social competence, behaviour and attachment (using the Strange Situation Procedure). The research team found that over this large group of children the results strongly supported a relationship between the classifications of attachment in the Strange Situation Procedure and the mothers' reports of children's social competence, and with teacher's reports of externalizing and internalizing behaviours. Interestingly, they found that these effects were mediated by parenting quality and the main effects of attachment classification disappeared when effects of parenting quality were controlled. This topic is returned to in the general discussion in Chapter 6 where results of all of the studies are discussed with reference to the meaning of associations (and lack of) with a measure of attachment.

1.2 Defining social competence

The term “socially competent” is one that is widely used in developmental psychology, but despite this, achieving consensus on the definition and measurement of social competence for young children has proven difficult. Investigators have adopted different approaches to measuring the social competence construct (see Denham, 2006). A recent study tested out a hierarchical model in which social competence was assumed to be a second-order latent variable, using longitudinal data (Shin, Vaughn, Kim, Krzysik, Bost, Mc.Bride, Santos, Peceguina, & Coppola, 2011). These authors describe how initial attempts to define and measure social competence for young children emphasized the behavioural tactics (or social skills) that facilitated a child’s entry and integration into social groups. These behavioural tactics were also thought to promote the construction of supportive social relationships with peers and adults in those groups. A later approach to understanding social competence focused on interpersonal and intrapersonal outcomes or consequences of the child’s social activity in groups such as having friends, being accepted by peers, and/or enhancing self esteem or social self-efficacy. These two approaches to social competence, both social skills and social outcomes, were shown to have weaknesses. For example, being accepted by members of a deviant group and making friends in that group may not be signs of social competence. Likewise, the skills that are said to index social competence may change across problems, change for the same challenge across differing social contexts, or change as cognitive or emotional capacities change (Serry et al., 2011). Their findings supported a hierarchical model of social competence and suggested that social competence is a coherent and stable construct that is interpretable for both younger and older preschool children.

In the present thesis, the use of the peer popularity measure is just one way of indexing children’s social competence, but it is acknowledged that it is just one *aspect of* rather than the construct social competence that has been measured as an outcome variable here.

1.3 Peer acceptance and social cognitive processes

Social status in the peer group is thought index children's general social cognitive sophistication, and is a strong predictor of concurrent and future psychopathology (Asher & Coie, 1990; Cowan et al., 1973). Peer acceptance and rejection are two of the most widely studied indices of social competence in young children and peer status is considered an operational measure of social competence. Children's peer relationships have been clearly established as important for healthy psychological development.

A number of social cognitive processes may explain individual differences in peer acceptance and rejection. To date, much of the research in this area focuses on social information processes, such as a hostile attributional bias, that precede and sustain peer rejection status (Asher & Coie, 1990; Dodge, 1980; 1993). However, whilst peers provide a rich source of information, the procedure of peer popularity is relatively crude and a peer choice on one dimension does not necessarily reflect 'social competence' (Sterry et al., 2011). In this thesis, Study 4 aims to extend the study of peer relationships, by examining peer representations, in addition to peer popularity.

Comparatively less is known about the social cognitive processes underlying peer acceptance, but available evidence suggests that somewhat different social cognitive processes may identify those children who are rejected from those who are nominated as popular by their peers. In particular, young children who are accepted or nominated by their peers as popular may be especially able to understand the thoughts and feelings of others and to adopt others' perspectives (Rubin, 1972; Rubin & Maioni, 1975; Selman & Demorest, 1984). This suggestion parallels research on the social adjustment correlates of individual differences in children's ToM (Bosacki & Astington, 1999; Dunn, 1996; Hughes & Dunn, 1998).

A separate line of research suggests that peer acceptance is associated with (a history of or current) secure attachment. This conclusion is supported by several studies using diverse methods (Cassidy et al., 1996; Cohn, 1990; Sroufe, Egeland, & Carlson, 1999; see Schneider, Atkinson, Tardif, 2001 for a review). A number of studies confirm that infants securely attached to their mothers at 12-19 months of age also show positive patterns of social behaviour three or four years later in the nursery school. Children from a background of secure attachment are likely to be confident, curious, skilful and less dependent (Thompson, 2008; Erickson, Sroufe & Egeland, 1985). They are also likely to be more socially-oriented and empathic, and act in a more co-operative, friendly and outgoing manner to other infants and adults. They consequently tend to be more popular and have more friends (LaFreniere & Sroufe, 1985). Although the empirical link is reasonably robust, the social cognitive mechanisms underlying the connection are not well specified. One hypothesis is that positive representational models of self and relationships, which are promoted from supportive and sensitive experiences of caregiving, are carried forward to influence subsequent relationships (Bowlby, 1969/1982). This social cognitive hypothesis that children's positive attachment representations predict positive adjustment in the peer group has received only limited research attention in relation to peers (e.g., Cassidy et al., 1996; Booth-LaForce et al., 2006).

Given the emphasis in this thesis on children's views of their peers, as opposed to any third party assessment of their competence amongst peers, it is necessary to focus on the large number of child characteristics that have been considered in relation to peer social competence and acceptance, as well as looking at the contributions made to these relationships by constructs of social cognition. Some characteristics such as sex, race, name, physical attractiveness, intelligence, social class and birth order have received more attention than others and have also been well reviewed (e.g., Hartup, 1983; McConnell & Odom 1986). In general, associations between peer measures and child characteristics have focused on one feature at a time, although these characteristics may not necessarily be independent.

1.3.1. Gender differences in peer acceptance

There is ample evidence that boys' and girls' peer relationships are sex segregated from an early age and that the structure of girls' and boys' groups differ in terms of intensity, exclusivity, stability, reciprocity and hierarchical organization. Boys play in hierarchically structured groups, have closer friendship networks and are more open to the development of new friendships. Girls play predominantly in dyads and have one-to-one close reciprocal friendships; their social networks are structured horizontally and are based on equality (Rose & Rudolph, 2006; Maccoby, 1990, 1998). These differences in social structure suggest that the criteria on which boys and girls base their sociometric choices may differ considerably (Maccoby 1986; Daniels-Beirness 1989). The extent to which popularity and rejection are dependent on similar or different social behaviour for girls and boys is relatively unknown as there is so little research on girls. Studies examining the correlates of poor peer acceptance have been mainly conducted on boys (Asher & Coie 1990). However, more recent empirical research has contested these gender differences in how children interact with peers and suggests that boys and girls are more similar in their tendency to form same-sex peer groups that were distinct, tightly-knit, and characterized by status hierarchies (Gest, Davidson, Rulison, Moody & Welsh, 2007).

1.3.2. Ordinal position within the family and peer acceptance

Since Shachter (1964) first found that later born college students were more popular than firstborns, results of research have been mixed, though well-controlled studies have continued to show a birth order effect with later born children being more popular than firstborns (Hartup 1983). Studies have also compared only children with children with siblings and found no differences on measures of peer acceptance. However, the only children do obtain lower scores on self-report measures of need-for-affiliation and tend to spend more time in solitary, intellectual and artistic activities than in group-oriented activities.

If one adopts a ToM approach, an alternative hypothesis for this birth order/popularity research question may be that later born children become more socially skilled through interacting with and learning from their older siblings. There are birth order effects in relation to popularity and these are related to family interactions; whether these relate mainly to parenting or sibling relationships and exactly how remains unclear. It is interesting to take these findings and examine them alongside the research on younger siblings' enhanced performance on ToM tasks compared with their older siblings (Perner, Ruffman & Leekam, 1994). **However**, subsequent studies have failed to replicate the Perner et al., (1994) finding (Carlson & Moses, 2001; Cole & Mitchell, 1998, 2000; Cutting & Dunn, 1999; Meins & Fernyhough, 1999). In this thesis, the presence or absence of siblings is studied in relation to ToM performance.

Given the suggestion made by Meins, Fernyhough, Wainwright, Das Gupta, Fradley & Tuckey (2002) of an influence of mind-minded language in mentalizing development, it is essential to consider the possible contribution of the mind-minded comments that might be made by significant individuals other than the mother, for example siblings, and by the mother to other individuals in the presence of the child. As Fonagy and colleagues (e.g., Fonagy & Target, 1997) have argued from their group's analysis of Adult Attachment Interview derived recollections of attachment experiences, caregivers' general tendency to explain people's behaviour with reference to their mental states may be crucial in children's developing understanding of how beliefs and desires determine behaviour. Hypothetically then, this reference to mental states in the family, predominantly by the mother, may in turn influence how children behave in relation to their peers, and how they understand the beliefs, desires and intentions of these friends.

1.4 The Origins of Attachment

Since Bowlby's (1944) first work on the relationship between maternal deprivation and juvenile delinquency, and Mary Ainsworth's (1963) subsequent rigorous research stemming from her naturalistic observations of mothers and

infants, the field of attachment research has expanded to include a vast array of studies across childhood and the lifespan. Bowlby's hugely influential work, based on observations of children in a home for maladjusted boys, led not only to his belief that the child's relationship with his mother is important for later functioning, but that it has critical relevance for the child's immediate well-being.

At the time of Bowlby's observations, psychoanalytic and social learning theorists both held the view that the infant's relationship to the mother emerged primarily out of the fact that the mother feeds the infant. It was only after reviewing animal studies such as those by Lorenz (1935) that he noted that infant geese became attached to parents or objects that did not feed them. Combined with Harlow's (1958) observation that monkeys in times of stress did not cling to the wire monkeys that fed them, but to the cloth covered 'mother' that did not, it became clear to Bowlby that the attachment was more complex than the infant's need for food. Bowlby began to formulate his theory of attachment drawing on such diverse fields as evolutionary biology, ethology, developmental psychology, cognitive science and control systems theory (Bowlby, 1969/1982). In developing his theory, he postulated that the mechanisms underlying the infant's tie to the mother originally emerged as a result of evolutionary pressures. This strong tie that Bowlby observed between the infant and his mother he proposed was a result of a biologically based desire for proximity. He particularly noted that this tie was most evident when it was disrupted.

Bowlby first introduced attachment theory through a series of papers (1958, 1960a, 1960b) the first of which was "The Nature of the Child's Tie to his Mother". Ainsworth's observations in both Uganda in the 1950s and Baltimore in the 1960s provided data for one of the most important contribution to attachment theory, namely the assessment tool, the "Strange Situation". Ainsworth's research was hugely responsible for the place that attachment theory has in contemporary developmental psychology.

1.4.1 Attachment processes

When attachment processes are discussed in the theoretical background to the series of empirical studies in this thesis it is important to distinguish the different ways in which these processes are commonly understood. In Attachment Theory the ‘attachment system’ is thought to be activated by threat and emotional arousal, commonly in the form of fear or sadness, and motivates attachment behaviours with long term caregivers. Bowlby (1969/1982) maintained that the “attachment behavioural system” is one of several species-specific “control systems” that have evolved to help specific species survive and to facilitate reproductive fitness. In the next section on Internal Working Models (1.4.1.1) a detailed description is given as to how individuals develop a system (internal working models) that guide the attachment system. These working models are developed based on the repeated daily transactions that go on between the infant and parent and crucially are both models of the caregiver, and of the self in relation to the caregiver, and also of the attachment relationship as a whole. An important issue in relation to the attachment system is how it is involved in regulating negative emotions provoked by the appraisal of threats and dangers. Bowlby (1969, 1982) noted that reactions to these threats and dangers included by the classical “fight-or-flight” responses (Cannon, 1939), but also seeking proximity to a strong, supportive, and protective attachment figure. In constructing a model of the attachment system functioning, it is understood (Mikulincer and Shaver, 2004) that there is a two-stage process by which threat appraisals lead to activation of the primary attachment strategy. In the first stage, the appraisal of threat triggers a preconscious activation of the system which increases the accessibility of the attachment-related representations in memory. In the second stage, this preconscious activation results in conscious thoughts about seeking proximity to attachment figures and this in turn leads to behavioural intentions to seek proximity and support and finally to actual seeking of proximity and support. The Strange Situation measures attachment defined this way by rating emotion regulation and mother-child interactions on reunion following separation. The procedures and classification system associated with this measure are discussed fully in Chapter 2 on Methods. Attachment may also be seen also as a more

general set of processes in the parent-child relationship, covering wider activities such as parent-child conversations, or even quality of discipline and it is conceptualised this way in the series of studies in this thesis.

In this thesis, the choice of the MSSB for assessing attachment representations, termed here attachment-related representations reflects the focus both of these studies on the wider set of processes that are covered when eliciting children's narratives about their relationships with parents, and also the difficulty of truly activating the attachment system in the period of early to middle childhood through the use of measures. Therefore, an important issue for consideration throughout this thesis is the degree to which representational procedures activate the attachment system; this may differ according to the age of the child being tested (Solomon & George, 2008). Also, different stories would appear to result in better discrimination between classification groups at different ages. For example, in the stories of 3-year-olds, better distinctions have been seen in response to the "monster in the bedroom" story than to any of the other stories (George & Solomon, 1996). In this thesis the Burglar in the Dark is used as the English translation of this stem. In older children, clearer distinctions among the classification groups were seen in response to the "hurt knee" (in this thesis the equivalent 'burned hand' was used). These differences between the age groups may reflect an interaction between the attachment system and cognitive development. Representational measures are clearly limited, and this is discussed in greater detail in the chapter on Methods. At their best, representational measures are useful for giving researchers data that reveal both the content and the structure of young children's thought or "state of mind" (Main, 2000) regarding attachment.

The story stems involve family members and they allow the child to express representations of attachment figures in relation to the self. Some, but not all, of the stems in the MSSB, were designed specifically to assess children's representations with respect to separation and reunion. Other stems focus on conflict and moral dilemmas. Despite the fact that the attachment system is not being activated by all the stems in the MSSB, children's narratives are said to reflect emotionally meaningful experiences that have become internalised by the child, in relation to significant others, and these are reflected in Bowlby's Internal

Working Models. In drawing conclusions on the relationships between the variables under investigation in this thesis, it is therefore stated throughout that the narrative responses given by the children are *attachment-related* and not a reflection of attachment status. It is acknowledged that some story stems will get closer to activating the attachment system and that there are likely to be differences in the extent to which this system is activated according to age. What is being elicited by the chosen story stems of the MSSB is children's understanding of a number of themes that relate to the attachment system, but which do not all necessarily activate the attachment system. The original Bretherton, Ridgeway, and colleagues (1990) doll-play procedure was designed to access security in 4-year-olds and four of the original five stories were involved in rating and classification with respect to attachment (spilled juice, hurt knee, 'monster in the bedroom', parents depart and parents return). These Bretherton stories are a subset of the MSSB. In the MSSB, the story stems all present dilemmas for the child, including social dilemmas, and test the child's moral understanding as well as the psychological accessibility of the parent. . More sophisticated coding schemes, not available at the time of carrying out this research, have been used for examining specific themes in children's narratives with respect to the attachment relationship, such as the dysregulated aggression shown by children with conduct disorders in response to conflictual story stems (Hill, Fonagy, Lancaster, & Broydon, 2007).

In the present study, attachment is seen as a more general set of processes in the parent-child relationship which covers emotionally meaningful experiences between parent and child, parent-child conversations, how conflict is managed, and how discipline is used in the parent-child relationship. 'Attachment-related representations' therefore refer in this thesis to this broad set of processes in the parent-child relationship. The benefits of a secure attachment are derived not only from a sense of security established in early life but also from the continuing influence of sensitive parental care, and the associations that are under examination in the series of studies presented in this thesis may equally be explained by this ongoing influence. No causality is implied, and it is not possible to draw specific conclusions about whether the hypothesised and demonstrated associations between the key variables, specifically between the dimensions of the

MSSB and other variables reflect associations between early attachments and later behaviour/relationships. Crucially, what is conceptualised in the series of studies in this thesis is the child's Internal Working Model, which is subject to changes with the child's development, with shifts in the importance of the attachment relationship with age, and with the introduction of other key figures in the child's life. It is the child's Internal Working Model of attachment that is purported to be accessed via the MSSB story stems and therefore the stems reflect both current attachment relationships as well as, in part, the early attachment with the parent. They are not a direct reflection of the child's attachment status with respect to the parent, and this is outlined throughout the thesis

1.4.1.1 Internal working models

Attachment is the process of developing the first close selective relationship of a child's life and is defined as the internal organisation of the attachment behavioural system in relation to an attachment figure (Ainsworth, 1972; Bowlby, 1973). This relationship acts to reduce anxiety in strange settings and forms a base from which children develop further relationships. The quality of an attachment can be either secure or insecure and, according to Bowlby's attachment theory, (1969/1982, 1973, 1980), the relationship is defined by a representational model of the attachment figure.

Although almost all infants develop an attachment relationship to their primary caregiver, not all of them are able to use their caregiver as a secure base from which to explore the world. Ainsworth was the first to describe in detail the aspects of the caregiving system that are most important for the development of the attachment relationship and proposed that infants need a secure base from which they can gradually explore their environment and develop new skills (Bretherton, 1991). Attachment behaviours are those that increase proximity, or maintain contact with, the attachment figure (Solomon & George, 1999) and are thought to be organised with respect to an internal attachment 'control' system, which has the primary function of protection and the set goal of felt security.

Bowlby (1980, 1988), states that infants form internal representations of their own self and relationships, known as ‘internal working models’ (IWM). These are a set of expectations, learned through the infant’s relationship with their attachment figures, which a child builds up about the world and those in it (Cassidy, Kirsh, Scolton & Parke, 1996). IWMs are based on infants’ expectations for the accessibility and responsiveness of their caregivers. These mental representations not only enable the infant to make predictions about the caregiver’s responsiveness, but develop into interpretive filters; through these filters children reconstruct their understanding of new relationships and experiences. This understanding is consistent with past experiences and expectations that arise from either secure or insecure attachments. Both secure-base behaviour and attachment working models are said to emerge from everyday parent-child interactions. However, it is still relatively unclear how early care leads to secure base behaviour and how the transition from this secure-base behaviour to mental representations is actually achieved (Oppenheim and Waters, 1995).

It is these internal working models or mental representations of the child’s attachment to his mother that are under investigation in the studies in this thesis; it is hypothesised that they are being accessed through story stem methods of assessment (see Chapter 2). It is important, therefore, to critically evaluate the validity of using children’s verbal reports of their attachment representations when seeking to make meaningful statements about both their cognitive skills (ToM) and relationships with others (peers).

The question of whether attachment working models should be seen as relationship-specific or as representing general strategies of relating is a crucial theoretical question in the context of this series of studies. Bowlby conceived of attachment working models as a translation of actual relationship patterns into representations of self and attachment figure, that is, as relationship specific. He also assumed, however, that early relationship patterns influenced how a child might enter into relationships with other caregiving adults and peers, in addition to future partners, and children, into adulthood (Bowlby 1988). This explanation

is problematic when a child's relationship with one attachment figure is secure but with another insecure. A number of studies comparing child-mother and child-father attachments have demonstrated that the child-mother attachment security is a much stronger predictor of later relating with peers than attachment security with the father (for a meta-analysis, see van Ijzendoorn & Bakermans-Kranenburg, 1996). However, in some other studies, two secure relationships predicted better child outcomes than two insecure relationships. There is therefore still a lot to be discovered about whether, when and how a child constructs a single model of the self whilst being part of two qualitatively different attachment relationships.

Thompson (2008) reviewed Bowlby's original concept of IWMs and found it to be somewhat imprecise and to account for a wide range of developmental outcomes such as theory of mind and proneness to stress. Belsky and Cassidy (1994) questioned whether IWMs constitute a "catchall, post-hoc explanation" for almost anything to which a secure attachment is found to be associated. Thompson (2000) offers a different perspective on the under specificity of Bowlby's IWM's and suggests that another way of viewing them is to see them as developing representations that change over time with the child's conceptual growth. This developmental formulation (Thompson 2000) associates the growth of IWMs with associated conceptual advances in early childhood, such as implicit memory and social expectations in infancy, the development of event representation and episodic memory in early childhood, the emergence of theory of mind and autobiographical memory in the preschool years, and the development of specific social-cognitive skills later in childhood.

Thompson (2000) argued that these conceptual advances during childhood contribute to the representational capacities of Bowlby's IWM construct. These capacities are; understanding other people (including attachment figures), representing experience (especially in close relationships), self-concept and understanding how to relate socially to others. Thompson proposed (2008) that taking a developmental understanding of IWMs could provide an important

perspective that helps link attachment-related working models to children's cognitive development.

Thompson (2008) argues for IWMs changing over time in as much as the IWMs associated with secure attachment are likely to influence self-concept or emotion understanding most strongly in early childhood. It is at this stage that children's conceptions of themselves and others' feelings develop significantly. These IWMs according to Thompson (2008) are shaped by both direct experience of sensitive care, and also by secondary representations of parent-child conversation. He argues that the great narrative influence of parent-child conversation is reflected in theory of mind and links these two constructs. Thompson's argument is supported in a study by Delius, Bovenschen & Spangler (2008) in which the authors investigated the ontogeny of the IWM of attachment during preschool age, focusing on children's knowledge of their own behavioural options and their expectations of the behaviour of the caregiver. These are just two components of a theory of attachment, but are not sufficient to describe the whole story. They found that the age period between 3 and 4 years may be a transitional phase in the development of the theory of attachment and that therefore a generalized "theory of attachment" enabling children to explain and predict other situations only occurs later in development.

Although direct study of IWMs is difficult (Thompson & Raikes, 2003), research on the associations between attachment security and psychological understanding reveals that secure children show greater emotional understanding (Laible & Thompson, 1998), advances in conscience development (Kochanska, 1991, 1995; Laible & Thompson, 2000), more positive and constructive representations of relationships (Cassidy, Kirsh, Scolton, & Parke, 1996; Laible, 2004) and more positive conceptions of self (Goodvin, Meyer, Thomson & Hayes, 2005; see Thompson, 2006b). These benefits of a secure attachment derive not only from a sense of security established in early life but also from the continuing influence of sensitive parental care. Together, they suggest that security is an important definer of broad relational quality in early socialization. Moreover, these studies indicate that the influence of security arises in the

parent-child relationship and extends to other relationships partly through young children's mental representations of themselves and other people.

One view of IWMs is that their influence is at its greatest when children are at the stage of developing social understanding and personality. Most theorists would agree that IWMs change with further experience and conceptual growth, which leads one to the conclusion that the influences on early attachment relationships may not be enduring unless the IWMs with which they are associated are maintained. In a study with parallels to this thesis, but using an adolescent population, Humfress et al (2002) cite one of the reasons why attachment and ToM may overlap is because they are part of the same or similar developmental processes. This stems from Bowlby's original proposal that children's ability to attribute independent thoughts and feelings to self and others signalled the fourth stage of the child-parent attachment relationship, a 'goal-corrected' partnership in the third year. Bowlby (1982) described four phases in the development of the attachment. While during the pre-attachment phase (phase I, 0 to 3 months) infants do not discriminate between people when showing attachment behaviour, they increasingly orient to familiar persons in phase II (attachment in the making, 3 to 6 months), then actively seek proximity exclusively to familiar caregivers and use them as a secure base from which to explore (phase III, clear-cut attachment, from 6 months on). In phase IV (goal-corrected partnership, from the third year on) the child (based on interaction experiences and growing cognitive abilities) is able to conceive the attachment figure as an independent person with their own goals, feelings, motives and desires and understands that her/his behaviour is organized around her/his own set-goals which can be different from the child's goals (Marvin & Britner, 1999). Therefore, the child is able to consider the plans of the attachment figure, which requires several cognitive abilities, "...first, a capacity to attribute to another a capacity to have goals and plans; secondly, an ability to infer from such clues as are given what the other's goals may be; and thirdly, skill in forming a plan that is likely to effect the desired change in the other's set-goal" (Bowlby, 1982, p352).

Marvin and Britner (1999) divided phase IV into two sub-levels, emergent and goal-correct partnership. During “emergent partnership” (starting at the age of about 3 years) physical proximity is still very important, but the child is now able to insert the caregiver’s goals into his/her own plan for proximity and, if necessary, to inhibit attachment behaviour. During “goal-corrected partnership”, the older preschooler is able to operate internally on the goals and plans of self and other and to engage in goal-corrected negotiations with the caregiver regarding a shared plan for proximity.

1.4.2 Parent-infant interaction and maternal sensitivity

Particularly important aspects of these models concern the availability and responsiveness of the attachment figure. Children form secure bases if the caregiver reacts to them with consistent and appropriate behaviour, however, maladaptive attachments occur if the caregiver’s actions are not reliable, consistent or appropriate, and the child is consequently disadvantaged. The quality of the representational model the child develops is thought to depend on the extent to which a parent is sensitive and responsive towards a child’s needs. Bowlby proposed that if the attachment figure acknowledges the child’s need for adequate comfort and attention, providing a secure base from which they are encouraged to independently explore their environment, the child will develop a secure internal representation of their caregiver as accessible and responsive to their needs, and a related model of the self as ‘valued’ and deserving of such care and attention. This allows the child to develop a sense of self-worth, resulting in a positive self-image. Conversely, if the caregiver is frequently unavailable and rejecting of the child’s needs, the resultant representational model is likely to be insecure. This can result in the child developing a belief of themselves as incompetent and unworthy of being loved, resulting in a negative self-image (Slough & Greenberg 1990).

It should be noted at this point that the evidence for the importance of the maternal sensitivity in relation to attachment security is not as strong as was first thought. Most early attachment research relied on the association between the two. There are several possibilities why attachment security is less well accounted for by maternal sensitivity than many earlier researchers expected. These include measurement issues, possible ‘moderator’ variables and the unknown elements of parenting behaviour that have perhaps not been identified (Belsky, 2005). Other constructs, such as mind-mindedness and reflective functioning would appear to be important influences on attachment security that are distinct from, but undoubtedly allied to, maternal sensitivity.

Seminal studies by Fonagy et al., (1991) and Benoit & Parker (1994) have demonstrated the clear link between mothers’ own attachment histories (as measured by the Adult Attachment Interview) and their subsequent attachment to their own infant. The representations that the mother has in her mind regarding her own parents are highly predictive of the type of representations her own child will have of her. It is perhaps not too big a leap therefore to speculate that there might be some relationship between some of the dimensions on the Adult Attachment Interview (AAI, George, Kaplan & Main, 1985) and those on measures of children’s attachment representations.

1.4.3 Attachment representations

Representational models can serve a useful purpose for the child, making unnecessary the construction of a new set of expectations for each new situation. However, one view is that due to their resistance to change once formed, when circumstances change or involve another interaction partner and representational models may become no longer appropriate, they may remain to guide the individual’s behaviour in pathological ways (Cassidy et al, 1996). Another view, alluded to earlier in this chapter (Thompson, 2008) is that IWMs are susceptible to change according to social cognitive growth in the child, and that attachment representations change with this growth.

1.4.4. The reflective self

Fonagy et al., (1991) have taken Bowlby's theory one step further and developed the idea of the 'reflective self'. They propose that this acts as "*internal observer of mental life*." The skill of reflective function depends upon the adult taking what is known as the 'intentional stance' (Dennett, 1989). The parent, usually the mother, is said to reflect on the "mental experience" of the child – this can be both conscious and unconscious and is demonstrated in something as mundane as a mother commenting on her infant's cry meaning that s/he needs feeding or changing. In this reflection, the adult assumes the child has intentional states of mind (he or she *intends* things) or, in other words, the adult is conscious of the representational level that is underlying the child's behaviour. Through these rather mundane, but discrete and undoubtedly important reflections, the mother/carer communicates to the infant her ability to 'read' his behaviour. Thus the caregiver is interpreting the pre-verbal communications of the child, and behaving towards them in such a way that indicates to the infant that they have ideas, beliefs, feelings and wishes which determine their actions and the reactions of others to them. Fonagy et al., (1997a) provide some of the first evidence suggesting the presence of significant correlations between the attachment security of young children and their concurrent ToM competence, indicating that its acquisition is part of an inter-subjective process between the infant and caregiver. It is the concept of the 'reflective self', and the flexibility and maturity of this self (as demonstrated by a secure attachment pattern) that is thought to play a direct role in the development of awareness and appreciation of one's own and another's mental states (i.e., ToM).

The development of the reflective self is seen as intrinsically tied to the evolution of social understanding (Fonagy, Steele, Steele, Moran **and Higgitt** (1991). They reason that it is through an appreciation of the reasons behind the actions of his caretakers and siblings that the child can come to acquire a representation of his own actions as motivated by mental states, desires, and wishes. A more advanced level of the reflective-self function involves the ability to think about another person's thoughts about a third person's thoughts.

From the evidence in the research field on ToM, this is probably not acquired fully until children are aged around 6. The pathway from reflective-self to secure attachment works in the following way according to Fonagy et al., (1991): The caregiver needs to have the capacity to contain the infant's affects and anticipate his or her psychological and physical needs. In order to be attuned to the infant, the caregiver must have an awareness of the infant as a psychological entity with mental experience. This presumes a capacity on the part of the caregiver to reflect on the infant's mental experience and then to represent it to the infant through actions and words that the infant can understand. The reflective self has been found to be more highly developed in children who were more secure with their mothers at 12 months (Main, 1991). It follows that a caregiver's capacity to conceive of and think about relationships in terms of mental processes and functions will determine the security of the infant with that caregiver.

1.4.5. Narratives and the Role of Coherence

Social cognitive research from an attachment perspective emphasises not only the affective content of the representations, but also the quality or coherence of the representations. In fact, in adults it is the coherent or incoherent quality of the attachment narrative rather than the affective content of the representation that signals security or insecurity (Main, 1991). This was found to be one of the key variables in ascertaining the attachment status of adults who were tested on their recollections of their own childhood experiences using the Adult Attachment Interview (AAI; Main, Kaplan & Cassidy, 1985).

A coherent narrative, or verbal account of memories, is one that has four pragmatic features that are important for meaningful, reciprocal social communication (Grieg, Minnis, Millward, Sinclair, Kennedy, Towlson, Reid and Hill, 2008). These features are; relevance; appropriate quantity; quality (truth and evidence); and manner (brief, orderly and unambiguous). The emphasis on coherence in narrative-based empirical research stems from the growing body of evidence in support of the view that children's ability to communicate openly

and coherently about interpersonal topics is linked to their security and to the prenatal, narrative state of mind of their caregiver (see Bretherton & Mullholland, 1999; Steele et al., 2003).

The significant degree of overlap between behavioural assessments of attachment security in preverbal infants (i.e., Strange Situation) and narrative-based assessments of attachment and caregiving process in adults (i.e., AAI) is widely documented (see van Ijzendoorn's 1995 meta-analysis). One study found that maternal attachment interview collected during pregnancy identified as coherent and secure predicted a central organizing feature of 5-year-old's narratives, i.e., the extent to which they resolve social and emotional dilemmas by referencing an authoritative parent (Steele, Steele, Woolgar, Yablsy, Fonagy, Johnson & Croft, 2003). Specifically, it is thought to be the organization and coherence of children's narratives in response **to the story-stem prompts** that reflects their current attachment security to their mothers (e.g., Bretherton, Ridgeway, & Cassidy, 1990; Cassidy, 1988; Oppenheim, 1997).

Narrative coherence reflects the child's ability to address and resolve the issue of conflict in the story stem while maintaining a storyline that makes sense (Robinson, 2007). Parallels have been drawn with the discourse analysis that has been successfully used to access the internal representational states of adults (George, Kaplan & Main, 1985) where coherence in the adult's narrative is thought to reflect secure attachment in early infancy. In the Adult Attachment Interview (AAI, George, Kaplan & Main, 1985), by answering a set of structured questions about the relationship with one's parents during childhood, an adult has the opportunity to monitor his or her own remarks. This ability to "step back and consider (one's own) cognitive processes as objects of thought and reflection" (Main, 1991, p134) was viewed by Main as *metacognitive monitoring*. In the AAI, metacognitive monitoring is at the centre of a coherent narrative. Fonagy and his colleagues (Fonagy, Steele, Moran, Steele & **Higgitt**, 1991; Fonagy et al, 1995) extended Main's work and suggested that coherence and metacognitive monitoring signal an ability to reflect upon one's own and

other's internal affective experience in complex ways, as described in the term 'reflective self' discussed previously in 1.4.4. The term *reflective function* refers to the capacity to mentalize or to understand one's own and other's behaviour in terms of mental states such as intentions and feelings (Slade, 2005).

Metacognitive monitoring, in parallel with reflective function facilitates the development of coherence of mind, and developments in neuro-psychobiology (Damasio, 1994; Schore, 1994) make it possible to understand more precisely the processes occurring in the brain when it operates 'coherently', that is, when integrating other memory **systems**. Securely attached individuals tend to appraise situations as less threatening than insecure individuals – but especially people with a disorganized attachment history – and are generally more optimistic (Belsky 2002).

Whilst it is not possible to empirically test children's metacognitive monitoring in the present thesis, the research studies set out do at least examine the extent to which children of varying ages are able to reflect on their own experiences of being parented, through the story stems used to elicit these attachment-related representations. Main (1991) proposed that secure children were likely to be more advanced on metacognitive knowledge than their insecure counterparts. This original work by Main led on to numerous subsequent studies where security of attachment was associated with a coherent narrative in children's representations (e.g., Oppenheim, 1990).

The measurement of attachment representations has been developed using doll-play, story-stem techniques. In using an analysis of the attachment-related narratives of children, attachment representations can be assessed in terms of their organisation. The more organised a child's representations, the more securely attached they are thought to be. In a group of three-year-olds, securely attached children were more likely than insecurely attached children to tell coherent doll stories in which the parents were protective and empathic (Bretherton, Ridgeway & Cassidy, 1990). Taken together with studies by Oppenheim (1990), Slough and Greenberg (1990) and Shouldice and Stevenson-Hinde (1992), comparing attachment narratives with earlier attachment

classifications of behaviour using the Strange Situation – they point to important associations between children’s narratives about attachment and both concurrent and earlier observational assessments of attachment. These findings can be interpreted as supporting the notion that young children construct internal working models with respect to attachment and these are valid reflections of attachment relationships (Shouldice and Stevenson-Hinde, 1997; Slough and Greenberg, 1990).

Where attachment representations have been investigated using narrative measures, three dimensions are usually emphasized: the *content* of the events (whether there is evidence of the parent’s responding sensitively to child distress; the manner in which the narrative is conveyed (often referred to as the *coherence*) – this is the ability to report attachment-related experiences in a clear, logical, affectively regulated manner, and the third dimension is *disorganization* of the narrative, and this is particularly linked with psychopathology and adverse early rearing experiences.

Authoritative parenting has long been considered to be a key feature of a secure attachment. In the literature on parenting, optimal child development results from parental behaviour high in warmth and control (the authoritative stance), as suggested first by Baumrind (1967). These same parental characteristics have also been identified as central to the healthy child’s perception of parenting (Bretherton, Golby & Cho, 1997; Oppenheim, Emde, & Warren, 1997). In the transgenerational studies, where a parent showed evidence of an autonomous-secure state of mind in response to the AAI during the assessments during pregnancy (using the AAI), it was anticipated that their child would present narratives with strong indications of authoritative parenting, and indeed this hypothesis was borne out (Steele, et al., 2003). Evidence from these studies is cited here in support of a link between children’s attachment-related narratives and their attachment status with respect to their caregiver. The data in Study 2 on children’s disciplinary narratives provide an interesting insight into the authoritative/authoritarian distinction.

Little is known about the meaning of individual differences in the coherence of young children's attachment narratives, although this information is typically assessed even in young children (Green, Stanley, Smith, & Goldwyn, 2000) and there is some evidence supporting its clinical relevance (von Klitzing, Kelsay, Emde, Robinson, & Schmitz, 2000). Thus, an additional aim of the studies set out in this thesis is to examine the association between the affective content of the children's attachment-related representations and the coherence of these representations, and the extent to which both social cognitive processes relate to peer popularity.

A lack of coherence has often been linked with psychopathology, problems with emotional understanding and social development in adolescence (e.g., Humfress et al, 2002, van Ijzendoorn, 1995; Greenberg, 1999). Incoherence may not be a reflection of attachment status but may be more a function of maturation (e.g., verbal ability).

1.4.6 Attachment and peer popularity

There is a substantial amount of research attesting to the association between attachment security and children's relationships outside the family, including with peers. Despite this, relatively few studies focus on children in middle childhood (Booth-LaForce et al., 2006). Security of attachment with caregivers in the preschool period has been found to relate to relationships with peers and teachers (e.g., DeMulder, Denham, Schmidt, & Mithcell, 2000), and friendships in middle childhood (e.g., Booth-Laforce et al., 2006; Verschueren & Marcoen, 2005). For example, children with insecure attachments to their mothers have been found to demonstrate more angry-aggressive behaviour with peers and teachers, are viewed as being less socially competent, and are less well-liked than children who are secure (Cohn, 1990; DeMulder et al., 2000). Attachment security at 24 and 36 months of age has been found to predict children's enhanced social problem-solving skills and reduced loneliness (Raikes and Thompson, 2008). Attachment research suggests that security especially facilitates the child's capacities to experience greater closeness and intimacy in

close relationships, such as with friends and teachers (Thompson, 2006). There is also evidence from attachment research that a secure attachment significantly colours the parent-child relationship (see Thompson 2006 for a review). Young children in secure relationships are more receptive, cooperative, and responsive to the caregiver's socialization efforts (Kochanska & Thomspon, 1997; Thompson, Meyer & McGinley, 2006). Thus security enhances a young child's willingness to be socialized, and this may be especially apparent for children with particular temperamental profiles. Children with secure attachment histories tend to approach peer interactions with a set of positive expectations, anticipate positive responses from their peers, and are likely to experience more positive peer relationships than those with negative expectations (Shneider at al, 2001). It was found that children with higher attachment security scores would make more positive attributions about the intentions of others (Clark and Symons, 2009). The results from Clark and Symon's study indicated that children who have positive self-feelings may develop more positive relationships with others including peers. However, the reverse pattern could also be important. Children who feel poorly about themselves may make it challenging for either parents to develop and maintain a good parent-child relationship or peers to establish a friendship. In these instances, the negative self-representation would be the cause, rather than the effect of the relationships. Alternatively, a third variable may be important. For example, academic performance, family disruption or trauma may be the cause of negative self-representations and negative representations of others. Longitudinal studies would need to try to distinguish between these potential pathways from attachment through to later functioning.

In longitudinal studies, the association between early attachment and child peer behaviour and/or problems as children grow older has generally been fairly stable although there have been some inconsistencies. For example, the relationships were not significant for 3-year-olds but were for 6-year-olds (Sroufe, Egeland & Kreitzer 1990). In most studies, the associations have been examined cross-sectionally, so that longitudinal paths of stability or instability of associations have been difficult to discern. Moreover, in following up children to

6 years of age, composite measures of children's competence (including social competence) were found to be predicted by other measures of the home environment and the child's competence when younger, with infant attachment not adding significantly to the predictive power (Sroufe, Egeland & Kretizer 1990). However, when these preschool measures were excluded from the prediction analyses, infant attachment did contribute significantly to the prediction of competence at 6 years of age (Sroufe et al., 1990). Early insecure attachment was associated with having fewer friends and problematic peer relationships at the age of 10 years (Grossman & Grossman 1991).

More recently, links have been found between children's perceptions of security to both parents and others' appraisals of children's social competence (Booth-Laforce, Oh, Kin, Rubin, Rose-Krasnor, & Burgess, (2006). Furthermore, this study by Booth-Laforce et al, examined whether children might differ in the extent to which their attachment security with the same-sex parent would predict peer-group functioning, but they did not find any evidence of this same-sex linkage. However, this study is of interest in that it did not support the "mother primacy hypothesis" (Suess et al., 1992) that attachment to mother carries more weight in terms of the child's social-emotional adaptations than does attachment to father. Booth-Laforce et al's (2006) study found that security with mother predicted higher social competence with peers but neither aggression nor anxiety/rejection; while security with father produced lower aggression with peers (and higher social competence, but this effect was likely a function of the overlap between security with father and mother). These results suggest the unique and differentiated roles of each parent in influencing their children's development, and support the findings of Verschueren and Marcoen (2002, 2005), Lieberman et al, (1999), and Steele and Steele (2005) in terms of the differing correlates of child-mother and child-father attachment security in middle childhood. Steele and Steele's work (2005) is pertinent here because they found that fathers' Adult Attachment Interview classifications predicted their children's reasoning and approaches to dealing with peer conflicts and issues. It is also possible that within the context of play between fathers and their securely attached children (especially in early rough and tumble play), that

these fathers may help their children learn the boundaries between play and aggression. This in turn may contribute to the socialization of self-regulation in other contexts.

Studies show that positive/coherent responses to story stem conflicts are associated with self-regulation and social competence in children, whereas negative/incoherent responses are associated with behavioural and emotional problems. Laible, Carlo, Torquait, and Ontai (2004), for example, found that preschool to second-grade children who represented relationships as pro-social (i.e., where figures show empathy, affection, affiliation and reparation) were rated by their parents and their teachers as being more cooperative, joyful, autonomous, and secure in interactions with peers. In a study by Verschueren and Marcoen (1999), kindergarten-aged children with secure representations of attachment to fathers or mothers were better accepted by peers, more popular in their peer-group, and showed more pro-social behaviour (by teacher report) than children with insecure representations of attachment. In a study of school-age children with a history of maltreatment, Shields, Ryan, and Cicchetti (2001) found that positive/coherent representations of caregivers in children's play narratives were related to pro-social behaviour and peer preference, whereas negative/constricted representation were associated with emotional dysregulation, aggression, and peer rejection. In contrast, children with behavioural dysregulation were found to recount more aggressive and fewer pro-social stories, and to show a more incoherent story structure in play narratives following conflict-based story stems (Oppenheim, Nir, Warren, & Emde, 1997; von Klitzing et al, 2000; Warren, 2003, Warren et al., 1996; Zahn-Waxler, Park, Essex, Slattery, & Cole, 2005).

Gender issues are also important as von Klitzing et al., (2000) showed in their non-clinical sample. In this study, girls' narratives contained significantly more positive (affectionate) and fewer aggressive themes than those of boys, and were significantly more coherent. In addition, children's cognitive abilities, especially verbal competence, are important control variables, because low verbal competence is a known risk factor for behavioural symptoms (e.g., Perren,

Stadelmann, von Wyl, & von Klitzing, 2007) as well as being an unfavourable precondition for the capacity to tell coherent narratives.

The link between parenting practices and peer relations was examined by Hartup (1983) and since then considerable evidence has been presented indicating that infant-parent attachment is related to young children's behavior with peers (Belsky & Cassidy, 1994). The quality of the attachment relationship, primarily with the mother, should predict the quality of peer relationships. According to attachment theory, parents continue to serve as a secure base throughout childhood, and the child's internal working model of the interactional history with caregivers influences perceptions of social events and expectations regarding relationships. Acceptance or rejection in the peer group and school setting is related to motivational, self-regulatory, and behavioural patterns, which, in part stem from and are maintained by family processes (Moss et al., 1998).

Studies have focused on the qualities of these friendships, not simply on whether children are popular and findings from both home- and lab-based studies are generally quite consistent in illustrating associations between early child-mother attachment and friendship quality, examining many variables. More positive interaction was found between 4-year-old best friends with secure attachment histories (Kerns, 1994, Park & Waters, 1989; although see Booth et al., 1998 for differing longitudinal findings). In the longitudinal Minnesota Study of Risk and Adaptation from Birth to Adulthood of approximately 180 low-income mothers and their children, a subset of approximately 40 children was assessed over the course of a 1-month summer camp at age 10 (Elicker, Englund, & Sroufe, 1992; Shulman, Elicker & Sroufe, 1994; Sroufe et al., 1999). Those children who were classified as secure with their mothers at both 12 and 18 months were more likely to make friends with other children with secure attachment histories. In this same Minnesota study, infant-mother attachment predicted peer competence 15 years later as observed in small-group interactions during a summer camp reunion (Englund, Levy, Hyson, & Sroufe, 2000), as well as parent- and teacher-rated social competence at age 16 (Sroufe et al., 1999).

Sroufe and his colleagues (1999, 2005) have argued over the course of many longitudinal studies, that relating to one's friends of the same age is a key developmental task, especially during toddler-hood and the preschool years. They argue it is important in itself because it paves the way for subsequent tasks, including the development of close friendships and intimate partnerships. Although their findings are not entirely uniform, they do provide an overall consistent picture of a relationship between a secure mother-child attachment and more positive/harmonious interactions with peers, higher regard from peers, and fewer behaviour problems in preschool and primary school classrooms (see Berlin & Cassidy, 1999 for a review; Thompson, 2008).

Cognitive models suggest that attachment representations affect social relationships and behaviour through selective or biased cognitive processes, such as attention and memory, which influence children's behaviour as they try to re-create in each new relationship the pattern with which they are familiar (Main, et al., 1985). Children with positive attachment relations are therefore more likely to approach peer interactions with positive expectations, anticipating their peers to be responsive to their needs, and are consequently likely to elicit positive responses from behaving in a synchronous and cooperative manner (Cohn, Patterson & Christoploulos, 1991). Conversely children with negative attachment representations may be primed to anticipate rejection (insecure-avoidance) and, being quick to rely on hostile, aggressive interactional styles, behave in ways which elicit this (Goldberg, 1991). Similarly, a representation of others as inconsistent or unpredictable (insecure-ambivalent) could lead to both hesitant and impulsive behaviour with peers, resulting in a negative response (Rubin & Lollis, 1988; Sroufe, 1983).

Behaviourists, such as Kerns, Klepac & Cope (1996) propose that securely attached children are better able to use their parent as a secure base, from which they can explore their environment, enabling greater exposure to peer relations and development of social skills. It is also suggested that these children learn to act in a cooperative and synchronous manner within the parent-child

relationship, which in turn generalises to relations with peers (Putallaz & Heflin, 1990; Youngblade & Belsky, 1992).

An affective model advocates that secure children use the parent-child relationship to develop the ability to regulate negative affect constructively, enabling them to display positive emotions that benefit interactions with peers (Koback & Sceery, 1988). Conversely, insecure children may learn to display affect in an inappropriate manner, which may be less conducive to peer relations. A study by Contreras et al., (2000) supports this, suggesting emotion regulation as an important mediator of the attachment peer-relations link.

There is strong evidence that attachment representations predispose children to engage in behavioural interaction with their peers that leads to social acceptance or rejection (Belsky & Cassidy, 1994). Several studies found significant differences in children's ability to get along with their peers depending on their attachment (Pastor, 1981; Dodge, 1983; Erikson, Sroufe & England, 1985; LaFreniere & Sroufe, 1985; Jacobson & Willie, 1986; Cohn, 1990 and Fagot, 1997). In general, securely attached children are reported as more confident and sociable, consequently receiving more positive reactions from their peers, and being more well-liked than their insecure counterparts. It has been suggested that in an initial encounter with an unfamiliar peer, attachment pattern is related more to the child's attractiveness as an interactive partner than to the child's own active interest in engaging in peer interaction (Jacobson & Willie, 1986).

A meta-analysis of 63 studies indicated that infant attachment is related to young children's behaviour with peers (Schneider, Tardif & Atkinson, 2001). The effects were larger for peer relations in middle childhood and adolescence than for those in early childhood, and for studies that focused on children's close friendships as opposed to relations with other peers. Gender and cultural differences proved minimal. However, other reported studies have failed to demonstrate a relationship (e.g., Hubbs-Tait, Osofsky, Hann & Culp, 1994). The theoretical causal relationship between attachment and children's subsequent social relationships has been questioned (Grusec & Lytton, 1988) and

it is argued that other, non-attachment constructs, such as temperament, might serve this purpose equally well (Hinde, 1988; Lewis & Feirijng, 1989; Kegan, 1995). More empirical evidence is therefore needed before the existence of a causal link can be determined. However, in Schneider et al's (2001) meta-analysis, only 10 studies addressed how attachment was related to friendship outcomes, whereas 53 investigated the associations between attachment and other aspects of peer relationships (Lucas-Thompson & Clarke-Stewart, 2007). This is surprising given that children's relationships with parents are theoretically more likely to be related to close relationships than casual ones. In a longitudinal study, with an emphasis on examining the positive impact of a good quality marriage, less depressed maternal mood, and a secure mother-child attachment relationship were found to work together to promote children's friendships (Lucas-Thompson & Clarke-Stewart, 2007). The results indicated that a more secure attachment relationship with the mother and a more emotionally intimate relationship between the parents predicted children's positive interactions with a close friend. Marital quality was related to friendship quality both directly and indirectly through the mother-child attachment relationship.

In a study examining attachment security and parenting quality as predictors of children's loneliness with peers' security of attachment was found to be associated with individual differences in how children represent peer interactions (Raikes & Thompson, 2008). Those children in the study who were securely attached at 24 and 36 months exhibited more adaptive social attitudes and expectations for peer interactions as much as 4 years later, even with the influences of parenting quality throughout this period controlled. This lends further support for the view of attachment theorists that working models of close relationships developed in early childhood can influence later peer-related representations. Also consistent with the views of attachment theorists that a secure attachment should be associated with greater skill in establishing and maintaining close relationships, attachment security was associated with more competent social problem-solving skills and diminished reports of loneliness in the first grade in this same study.

Researchers have shown that secure attachment in its turn is associated with the child's subsequent willingness to explore novel environments, interact positively with adult strangers, enter into positive relationships with peers, and engage in relatively independent problem solving (Maccoby, 1984). Considerable evidence supports a link between attachment and acceptance by and behaviour with peers (Sroufe & Fleeson, 1986). A study by Cassidy et al., (1996) focused specifically on the connection between attachment and peer-related representations. Using reciprocal positive peer popularity as an outcome measure, the authors found that, rather than friendships shaping representations of peers, the link between attachment and peer relationships was mediated by peer representations. This lends support to the notion of a directive function of internal working models. Peer representations were elicited by assessing children's attributions of peer intent in an ambiguous negative event. It has been suggested that these attributional processes have much in common with the affective-cognitive processing that may be part of the formation of internal working models (Belsky & Nezworski, 1988). Attributional bias of this type has been found to link to children's peer relations and social competence (Crick & Dodge, 1994). Study 3 in this thesis uses the same measure of peer representations to test the influence of attachment-related representations on peer-related representations.

1.5 ToM

The phrase "theory of mind" was originally used by the primatologists Premack and Woodruff (1978), who defined it as follows:

"In saying that an individual has a theory of mind, we mean that the individual imputes mental states to himself and others...A system of inferences of this kind is properly viewed as a theory, first because such states are not directly observable, and second, because the system can be

used to make predictions, specifically about the behaviour of other organisms.” (p.515)

To expand on this definition, ToM is an individual's ability to attribute mental states to themselves and others, in terms of desires, thoughts, beliefs and emotions, enabling them to predict behaviour on the basis of this facility. The normal development of this ability during early childhood, and the consequent realisation that an individual has their own set of beliefs (true or false) about the world, is believed to contribute to an individual's understanding of relationships (Rubin, 1972; Rubin & Manoni, 1975) and their ability to interact with others in a reciprocal way (Bartsch & Wellman, 1989). Some have argued that ToM develops gradually during childhood over a period of time, and is influenced by many factors, some of which are described below. Others propose a sudden stage like development of ToM ability where a major conceptual change occurs around the age of four years. However, developmental accomplishments rarely emerge suddenly, fully-formed. Rather, development is generally thought to proceed via a sequence of stages or phases, each of which may represent an increasingly mature ability in the social skill or cognitive process of concern. This certainly seems likely for ToM. Gopnik and Slaughter (1991) and Baron-Cohen (1991) have demonstrated that normal children between 3 and 4 years of age find perception, imagination and pretence the most easy mental states to understand, desire follows as a slightly more difficult mental state, and belief the most difficult mental state to understand.

ToM ability and understanding the nature and causes of emotions are thought to be interlinked. The nature and causes of emotions are part and parcel of acquiring ToM and vice versa (Wellman, Cross & Watson, 2001). ToM progresses along a developmental pathway so that between the ages of four and six years children come to develop an understanding that emotions can be caused by beliefs and desires (Harris, Johnson, Hutton, Andrews & Cooke, 1989) and therefore reflect a more 'advanced' ToM (Hughes, Adlam, Happé, Jackson, Taylor & Caspi, 2000). Other more advanced ToM refers to second-order ToM (Perner and Wimmer, 1985) and this relates to the understanding of one person's

thinking about another person's thoughts, e.g., he *thinks* that she *thinks*. This usually develops between the ages of five and seven years (Perner and Wimmer, 1985; Sullivan, Zitchik & Tager-Flusberg, 1994).

Following this developmental pathway model, the development of an understanding of the relationship between belief and emotion is thought to develop at a slightly later stage to the understanding of people's behaviour based on their beliefs. Hence young children may be able to predict emotion on the basis of belief-desire reasoning before they can take a false belief into account. It is also thought that young children understand that people may hold different (but unproven) beliefs before they grasp the concept that one person may still hold a false belief when the truth is known by another (Wellman & Bartsch, 1988). Empirical evidence supports this model, and research into children's predictions and justifications of an individual's initial emotional reaction due to an expectation of something desirable, even if that belief is objectively false, has demonstrated improved capability with age (Harris et al., 1989).

Much of the current research into the cognitive development of pre- and early school age children was originally inspired by two of Piaget's observations of children at this age: that their thinking is egocentric and that they are captured by appearances. A strong body of evidence has since been developed suggesting that children of this age are not as egocentric as Piaget first thought, but that they do demonstrate problems distinguishing between appearance and reality. A child's understanding of this distinction coincides with the development of a ToM, at around the age of 4 or 5 (Gopnik & Astington, 1988; Dunn et al., 1991; Pillow & Lovet, 1998; Pilowsky, Yirmiya, Arbelle & Mozes, 2000). Children then seem to realise that other people's actions are governed by what they think and believe, and not by 'facts' or even necessarily reality.

1.5.1 The development of a ToM

Research on the child's ability to take others' perspective shows that children as young as 2 or 3 have at least some ability to understand that other people see or

experience things differently to the way they do. For example children of this age will adapt their speech or play to the demands of their companion. They play differently with older or younger playmates and talk differently to a younger or handicapped child (Brownell, 1990; Guralnick & Paul-Brown, 1984). However, understanding is clearly not perfect at this young age and thus two levels of perspective taking ability have been proposed (Flavell, Green & Flavell, 1990). Initially, the child realises that another person may experience something differently to them, but only when the child reaches the age of 4 or 5 do they develop the series of complex rules necessary for figuring out precisely what the other person sees or experiences.

This shift appears to coincide with a broader development in the child's understanding of appearance and reality. Flavell (1986) demonstrated this in a famous experiment in which a sponge was painted to look like a rock. Three-year-olds presented with this object either said that it looked like a sponge and was a sponge or that it looked like a rock and was a rock. However, it was not until children were aged four or five that they were able to distinguish the two, and realise that although the object looked like a rock it was in fact a sponge, thus that the same object is represented differently depending on one's point of view.

At this stage children also develop the understanding that it is not possible to predict what other people will do solely from observing the situation itself, and that the other person's desires and beliefs also enter into the equation (Harris, 1989; Astington & Gopnik, 1991; Gopnik & Wellman, 1994). As a result children build up various theories about other people's thoughts, beliefs and desires and about how these thoughts, beliefs and desires will affect their behaviour.

The development of an understanding of the relationship between belief and emotion is thought to develop at a slightly later stage to the understanding of people's behaviour based in their beliefs. Hence young children may be able to predict emotion on the basis of belief-desire reasoning before they can take a

false belief into account. It is also thought that young children understand that people may hold different (but unproven) beliefs before they grasp the concept that one person may still hold a false belief when the truth is known by another (Wellman & Bartsch, 1988).

It is thought that children build up a set of emotion scripts in which particular situations are associated with particular emotions. Scripts of previous similar situations are then used by the child to make predictions about what another person might feel in a specified situation (Chandler & Greenspan, 1972). However, this explanation does not take into account the fact that different individuals may appraise the same situation differently, due to the different beliefs and desires that individuals bring to the situation, yet research suggests that children can appreciate that the way in which someone reacts depends on these pre-existing beliefs and desires, allowing them to make predictions about emotion in a more sophisticated way (Astington, Harris & Olson, 1988).

Studies have supported this, demonstrating that young children can predict a person's actions not in terms of the objective situation facing the person, but in terms of the way that the person appraises it. In particular they understand that people sometimes act against their own interests (e.g., search in the wrong box) if they hold mistaken beliefs about the given situation. Research into children's predictions and justifications of an individual's initial emotional reaction due to an expectation of something desirable, even if that belief is objectively false, has demonstrated improved capability with age (Harris et al., 1989). Younger children concentrate on imagining the other person's goals, whereas slightly older children also take into account the set of beliefs – the mental map – that the other person has about where he or she stands with respect to those goals.

It has also been suggested that the prediction of other people's actions or emotions involves two steps, in a process known as 'simulation' (Harris, 1989). First, the invocation of a set of pretend or make-believe premises, in which the goals and beliefs of the other person are imagined; and second, the running of a simulation in which one's own action or emotion, given such make-believe

premises, is estimated. In order for children to be able to project internal states onto others, Harris (1989) believes that the child needs an awareness of their own internal state, allowing them to consider how they would behave and feel in a similar situation.

1.5.2 Tests of ToM

Experiments have been used to investigate children's ToM abilities. These include situations that test children's understanding that another person can hold a false belief or false emotion. Tests of false belief include the 'Sally-Anne' test (Baron-Cohen, Leslie & Frith, 1985), 'Cereal box' and 'Smarties' tests (Bartsch & Wellman, 1989). In each of these tests the child is asked what a character in a scenario will do. They pass the test if they demonstrate the ability to recognise that the character will act on the basis of their own beliefs, which may differ from the child's own. The tests therefore require the ability to ascribe beliefs, which may be false, to others. 'Sooty's lunch' and 'Mickey and Elmer' (Harris et al., 1989) are more sophisticated tests that enable assessment of children's ability to predict false emotions. These tests are described in more detail in Chapter 2 – methodology.

1.5.3 Factors influencing the development of ToM ability

The development of ToM can be influenced by a variety of factors. Research into the origins of ToM has explored individual differences in ToM, with particular focus on family, social environment and language ability (Cutting and Dunn, 1999). Social experiences and conversations within the family, particularly about emotions can influence false belief understanding (Dunn, 1991). Other studies have focused on the influence of siblings on children's developing ToM, with children who have siblings demonstrating a significant advantage over children without siblings in their performance on false belief tasks (Perner et al, 1994). This is possibly due to the increase in opportunity for play and cooperative interaction (Dunn, 1991). There is also some evidence that females develop ToM earlier than males (Charman, 2002). Children from

families of higher socioeconomic status performed better on a range of ToM tasks than did peers from more disadvantaged backgrounds (Cole & Mitchell, 1998, 2000; Cutting & Dunn, 1999; Holmes, Black, & Miller, 1996), and mothers' educational attainment has been found to correlate positively with their children's ToM performance (Cutting & Dunn, 1999; Meins & Fernyhough, 1999).

Despite the growing body of evidence on the social factors in ToM development, any causal role of these factors has been reported with great caution. This seems rightly justified as the mechanisms through which children's social environment might influence their ToM are still poorly understood. Several 'social factor' models of how children develop ToM have been proposed. Dunn (1994) argued that the reason why certain types of social interaction (e.g., joint play, shared jokes, moral reasoning, and sibling conflict management) are related to ToM performance was because they provide contexts in which children are confronted with conflicting views on the world. In engaging in these conflicts, children learn that different perspectives are held and that reality can be represented and misrepresented. Fernyhough (1996) presented a different account, along Vygotskian lines, in which he proposed that children internalize dialogue relating to perspectival conflict, and that it is this that underlies individual differences in ToM. Lewis, Freeman, Kyriakidou, Maridaki-Kassotaki and Berridge (1996) discussed an "apprentice" model of ToM development, in which children's interactions with older relations provide them with informal tutoring about the mind.

All of these models make good intuitive sense in their own way, but none have been able as yet to specify the mechanisms by which exposure to mental state language and perspectival conflict might lead to children being better able to understand the mental states of others.

Gopnik and Slaughter (1991) suggest a three-stage model of the development of children's comprehension of mental states:

- Stage 1: pretence, perception, and imagination
- Stage 2: desire and intention
- Stage 3: knowledge and belief

According to this developmental perspective early understanding of pretence and shared perception may underlie, or precede, an understanding of desire and belief. That is, they may be thought of as precursors to the development of a more mature theory of mind. A precursor has two aspects when used by developmentalists. It does not simply predict a later state or behaviour, but rather is structurally, functionally, or mechanistically related to it. There are other definitions of a precursor which will not be analysed in detail here, except to state that the meaning of the word is complex and depending on its definition implies very different conclusions when examining for example in this thesis whether one construct (attachment) might be a precursor to another (ToM). This is not the central focus however of this thesis; there are several early-developing social-cognitive abilities that may be developmental precursors of a theory of mind and these include, broadly, attachment. Fonagy, Steele, Steele, Moran and Higgitt (1991b) predicted that a caregiver's capacity to conceive of and think about relationships in terms of mental processes and functions will determine the infant's security of attachment, which in turn will influence the child's development of a "pre-reflexive self", and later a "reflexive self" or "internal observer of mental life" – in other words, its ToM. Research into children's development of a ToM has extended from an attempt to answer questions about the type of conceptual structure acquired by children, towards studies that investigate individual differences in children's acquisition of a ToM.

The above findings suggest that both ToM and attachment models provide plausible social cognitive explanations for peer acceptance and rejection. However, before examining if ToM and attachment predict peer social status

independently, it is necessary to examine the connection between these two constructs.

1.5.4. ToM and attachment

Fonagy et al., (1997a) provide some of the first evidence suggesting the presence of significant correlations between the attachment security of young children and their concurrent ToM competence, indicating that its acquisition is part of an inter-subjective process between the infant and caregiver. It is the concept of the 'reflective self', and the flexibility and maturity of this self (as demonstrated by a secure attachment pattern) that is thought to play a direct role in the development of awareness and appreciation of one's own and another's mental states (i.e., ToM). This is thought to occur by allowing the child to be particularly alert to the earliest indications of intentionality in the self and others.

Some overlap between the ToM and attachment constructs seems likely for several reasons. First, both models emphasise how young children understand the thoughts and feelings of others, in terms of a general capacity (in the case of ToM) or in the context of specific relationships (as in the case of attachment theory). In addition, many of the social interaction origins of advanced social understanding (or ToM) are also factors which promote secure attachment (Bretherton, 1990; Bretherton & Beeghly, 1982; Denham & Couchard, 1988; Dunn, 1996; Dunn, Brown & Beardsall, 1989; Dunn, Brown, Slomkowski, Tesla, & Youngblade, 1991). Not surprisingly, then, available evidence points to a significant, moderate association between the two constructs (Ontai & Thompson, 2008; Fonagy, Redfern & Charman, 1997b; Fonagy, Steele, Steele, & Holder, 1997c; Meins, Fernyhough, Russell, & Clark-Carter, 1998). Theoretical explanations for the overlap was suggested by Bowlby (1969/1982) and expanded by Fonagy and Target (1997). Specifically, caregivers who are sensitive to the child's internal states may promote a positive representation of self and the child's understanding of their own thoughts, ideas, beliefs, feelings, wishes and intentions (see Bretherton, 1990; Cassidy, 1988; Verschueren, Buyck, & Marcoen, 2001). The child's understanding of his/her own

intentionality may then extend to include the actions and reactions of others, so that children begin to view themselves and others as intentional agents. This hypothesis would predict that the connection between children's ToM and social adjustment is not direct but is mediated by social cognitions associated with attachment.

Ruffman, Perner and Parkin (1999) looked at whether and how mothers facilitated false-belief understanding in 3-4 year-olds. They found that three variables correlated with false-belief understanding: age; number of older siblings and the number of times mothers said they would respond to the disciplinary situations presented to them in this study by asking the child to reflect on the victim's feelings. This particular study provides insights into a specific strategy that parents might use to help children learn about mental states.

Conflict situations provide an ideal opportunity for teaching children about how their actions make others feel, and these types of situations have increasingly been studied between children and friends, siblings, and parents (e.g., Dunn, 2004). A discussion about how an action would make someone feel, for example, might be particularly likely to facilitate mental state understanding. It might be this type of response which Ainsworth, Bell and Stayton (1971) and Meins et al., (1998) had in mind when they claimed that mothers of securely attached children treat their child as having a mental state of their own. The conclusion from Ruffman et al's (1999) study was that there is a particular type of response that parents (in this study mothers) gave in disciplinary situations that facilitated false belief understanding, and that involved asking the child to reflect on the victim's feelings. This finding remained significant when the child's age, verbal mental age, time spent with mother and number of younger and older siblings was accounted for.

1.5.4.1 Mechanisms of causality in the relationship between Attachment and ToM

The issue of causality is crucial throughout this thesis and in the interpretation of any significant findings. Any relationship that has been found in previous studies between the two constructs of attachment and ToM (e.g., Fonagy et al., 1997, Meins et al., 2008, Ruffman, Perner & Lindsay, 1999) has so far struggled to make any meaningful statement about causality. For example, in Ruffman et al.'s (1999) study, the relationship between responses where the mother asks the child to reflect on another person's feelings could precede and enhance belief understanding, or it could mean that parents are more likely to give such responses to children who already understand false belief. Ruffman et al., (1999) state that their findings strongly suggest a causal link that these responses actually precede and facilitate false belief understanding because of the significant tendency of parents to use these responses mainly with younger children. Relatively few of the younger children in their study understood false belief and so it was unlikely that this preceded the mothers' responses. Furthermore, the fact that mothers give their responses to younger children who have a lesser understanding of mental states such as belief, and refrain from giving them to older children, is consistent with the Vygotskian notion that mothers pitch their response at a level slightly beyond the child's current level of understanding – encouraging the child to reflect on the other person's reaction when they believe the child may have been previously unaware. However, a note of caution; this is a speculative account and needs further evidence, ideally in a longitudinal study. It is still supportive, though, of the link between attachment and belief understanding. Mothers who engender secure attachment relations with their child go on to use these responses (where they encourage the child to reflect on mental states) more often. It may be that they are generally more aware of feelings and draw attention to them, and this awareness may be partially responsible for children's secure attachment.

1.5.5 Family size and ToM

Perner, Ruffman & Leekam (1994) demonstrated that, on average, children from larger families passed a false belief task at a younger age than children from smaller families indicating a link between family size and ToM development. They attempted to explain this theory in terms of the increased opportunities and incentives, such as pretend play, offered by the siblings of these children, aiding their acquisition of a ToM.

A study carried out in Greek communities in Crete and Cyprus examined the impact on ToM skills of a variety of knowledgeable family members (Lewis et al., 1996). This study went beyond Perner et al.'s (1994) in examining a range of social influences. It is important to note first that Perner et al. (1994) did not find a clear advantage of having an older (knowledgeable) over a younger (less knowledgeable) sibling. Lewis et al. (1996) pointed out that since most preschoolers interact regularly with a variety of other children, adults, peers, grandparents and fathers, it would seem premature to make inferences about the sibling "effect" until it is put into the context of other relationships. Therefore, Lewis et al. (1996) set out to examine a variety of social variables to discriminate between particular sibling-based social influences and a generalized social apprenticeship. Their study had the advantage of using a wide variety of false belief tasks involving both others' and the children's own understanding of mind. The data in their study confirmed the relationship between the number of siblings a child has and false belief understanding. This was obtained consistently at least in terms of the number of older siblings a child has. However, the results also attested to the importance of the other people present in the child's social network, including other adults, suggesting that theory of mind is not simply passed from one sibling to another in a process of social influence, but is influenced by older members of the child's social network, including older children, adults as well as siblings. As Dunn (1994) had already pointed out earlier, children come to acquire knowledge about the mind in daily encounters with others in interactions with family members over the third year of life that include: talk about causality and inner states, management of conflict by

parents, joint play, shared jokes, and reasoning about moral issues. In each of these activities children become confronted with conflicting ways of construing reality and as a result each provides possibilities of learning about the nature of misrepresentation, the skill at the heart of understanding false belief (Perner, 1991).

1.5.6 Use of mental-state language, ToM and attachment

Attachment theorists who have proposed a causal chain between a mother's psychological sensitivity and children's later mental-state understanding (e.g., Fonagy & Target, 1997; Steele, Steele, Croft, & Fonagy, 1999) have proposed that the mother's emotional and nonverbal sensitivity to her child promotes a secure attachment that in turn promotes the child's mental-state understanding (Harris, 2000). There is considerable evidence that maternal sensitivity is a good predictor of secure mother-child attachment. A further consideration however is the use of mental-state language by mothers when in conversation with their child. This variable was taken into account in Ruffman, Slade & Crowe's (2002) work. They considered that mothers may adapt their language according to their child's particular interests. Ruffman et al., (2002) found no evidence that the level of children's earlier ToM performance was linked to the frequency of their mother's later references to mental states.

With these things in mind, it is worth asking whether the frequency with which mothers refer to mental states is a good predictor of children's mental-state understanding. First it is necessary to make an independent assessment of maternal nonverbal sensitivity and to take into account the children's early attachment status. Furthermore it is important to minimize any impact of the child's conversational interests upon the mother. One way round this is to ask the mother to talk about the child to the experimenter, rather than to have a conversation with her child. De Rosnay (2003) conducted a longitudinal study with these considerations in mind. He studied 75 children (aged 4 ½ to 6 years) who had been assessed with respect to their attachment status at age 12 to 15 months. The children were assessed on their understanding of belief-based

emotion and their performance on TEC (Test of Emotion Comprehension, Pons & Harris, 2000). The mothers' talk with respect to their child was assessed in two different contexts: 1. Mothers watched the video of their child in the Strange Situation experiment and described the young child's reactions during the sequence of separations and reunions. 2. The mothers gave a description of their child in an open-ended interview with the experimenter. In both of these contexts the mother's references to mental states were coded. Results showed that mothers who made a higher proportion of mentalistic comments about their child in either context had children who performed better on both tests of emotion understanding. These effects remained when gender, verbal mental age, number of older siblings, socioeconomic status, and prior attachment status were accounted for.

The implication of these findings is that the connection between maternal input and children's mental-state understanding is not the result of the mother-child relationship as indexed by attachment status, or the child's particular narrative interests and associated conversational style. The findings from Ruffman et al., (2002) and from de Rosnay (2003) indicate that the frequency with which mothers refer to mental states predicts their child's later performance on theory-of-mind tasks to a greater degree than any contribution made by the child's earlier language or ToM competence. The critical variation among mothers appears to be linguistic rather than emotion or nonverbal.

A study into attachment, parent-child discourse and ToM development (Ontai & Thompson, 2008) analysed mother-child conversations about past event and coded them for maternal use of elaborative discourse and mothers' references to mental states. In this study the Attachment Q-sort (Waters and Deane, 1985) was used. The AQS has a large number of cards (75, 90 or 100). In each card a specific behavioural characteristic of children between 12 and 48 months is described. Cards can be used as a standard vocabulary to describe the behaviour of a child in the natural home setting – with specific emphasis on secure-base behaviour. After several hours of observation, the observer ranks the cards into several piles from “most descriptive of the subject” to “least descriptive of the

subject”. The number of piles and number of cards that can be put in each pile are fixed. By comparing the resulting description with the behavioural profile of a prototypical secure child as provided by several experts in the field of attachment theory – a score for attachment security can be derived.

In the study by Ontai and Thompson (2008), the mothers completed the attachment Q-sort measure and children completed four false-belief tasks. Results revealed that maternal conversational elaboration was a significant predictor of children’s ToM performance, whereas maternal mental state references and attachment security were not. Mother-child elaborative discourse referred to the elements of the conversation such as the use of statements that move the child’s conversation on, repetitions of the gist of the statement made by the child, clarification questions, memory prompts, and other elements of the discourse. These were compared with the maternal use of direct references to mental states, defined as references related to will, mind, imagination, interest, intellect, desires, wishes, emotions, excluding likes/dislikes and behavioural tendencies. These findings provide some further evidence for the importance of discourse in children’s ToM development. Contrary to previous research, the interesting feature of Ontai and Thompson’s (2008) study is that it provides evidence from a different perspective that suggests that attachment security does not predict ToM performance but that when mothers explicitly or implicitly reflect on children’s perceptions of events, while contrasting them with alternative accounts, for example, this offers the child an evaluation of their perspective which is key to influencing their understanding of mental states.

Mother-child pairs with secure attachment relationships were found to engage in discourse that includes more frequent references to emotion and moral evaluatives, suggesting that a secure attachment fosters the understanding of emotions (Laible & Thompson, 2000). In one study, where mothers were asked to discuss with their children incidents in the past, the emotion-laden discourse about the child’s past in which the securely attached mother-child pairs engaged, Thompson (2000) argued, may make emotions more accessible and less threatening for a child. In a more recent study by one of the same authors,

mother-child reminiscing about a negative emotional event was found to be associated with high levels of children's socioemotional development compared with reminiscing about a positive emotional event (Liable, 2011). Measures used in this latter study included the MSSB, Attachment Q-Sort (AQS 3.0 Waters and Deane, 1985) in addition to perspective-taking tasks. This study raises some interesting points about the way in which mothers help children to elaborate on their past emotional experiences, particularly when they are negative ones. The results that suggest that, by providing rich background detail when discussing children's past negative emotional experiences, mothers are helping children to construct rich memories of these experiences. They also help to scaffold children's understanding of these experiences in ways that are consistent with Vygotsky's (1978) theory. These detailed memories help to shape not only children's current emotional understanding but also their internal working models about their relational experiences (Fivush, 2006; Laible & Panfile, 2009).

Language abilities are said to be key to the early stages of mind-reading (Fisher, 2002), but whilst these abilities are part of the pattern of individual difference, the underlying mechanisms remain to be clarified. It is also important to note that little is known about the developmental significance of talk about emotional experiences when children are older than 2- to 5-year-olds, as this age group have been the main focus of research (Dunn & Brophy, 2005). We also do not know how emotion understanding and theory of mind are linked, after the early years. Nor do we know whether conversations about negative emotions having a high concentration of talk about the past, about causes of emotions and about mind-emotion connections, also characterize later child-adult or child-child conversations (Dunn and Brophy, 2005).

It would seem that secure attachment and mentalizing (as measured by passing ToM tasks earlier in development) are subject to similar social influences. Many studies support the hypothesis that secure children are better than insecure children at mentalizing. The first of these findings, reported from the London Parent-Child Project (Fonagy et al., 1997c) found that 82% of children who were secure with

their mothers in the Strange Situation passed Harris's Belief-Desire-Reasoning Task at 5 ½ years, compared to 50% of those who were avoidant and 33% who were ambivalent/resistant. These findings have not always been replicated elsewhere, for example in Meins et al's (2002) study on predictors of ToM understanding. Meins et al (2002) observed infant-mother pairs at six months. Interactions were coded for the mothers' use of mental state language that appeared to comment on the infants' mental states. They also coded for mothers' use of mental state language that *did not* appropriately reflect the infants' minds. At 12 months, security of attachment was assessed using the Strange Situation procedure and then children were tested on ToM tasks at 45 and 48 months. They found that ToM performance was positively correlated with mothers' appropriate use of mental state talk, but not with the inappropriate use of mental state talk, or with security of attachment. The other independent predictor of ToM performance in Meins et al's (2002) study was verbal ability. These findings are important because they represent the earliest known social predictor of individual differences in ToM.

1.5.7. Family environment and the development of social understanding

The family setting and child's attachment relationship with their primary caregiver are considered fundamental in the child's development of social understanding and the acquisition of a ToM and emotional understanding (Dunn and Brophy, 2005; Fonagy, 1991; Fonagy et al., 1991b; Hobson, 1993a,b; Main, 1991). In such psychodynamic accounts, the acquisition of a ToM is part of an intersubjective process between the infant and caregiver. Fonagy and Target (1997) have emphasized that it is important that the child can begin to distinguish the parent's desires and emotions from his or her own, and beginning language helps in achieving this distinction between the self and the significant other. In turn, this insight may be the beginning of seeing others as having goals different from one's own. However, perceiving another's goals does not imply conceiving of another's mind necessarily, nor does it imply imagining mother's beliefs as different from one's own (Nelson, 2005). Close connections between

individual differences in communicative abilities and mind-reading during middle childhood are suggested by Fisher's (2002) follow-up study at 8 years of "hard-to-manage" children originally studied by Dunn and colleagues. Fisher (2002) found that it was language and communicative problems that primarily accounted for the children's failures on "advanced ToM" tasks.

In their influential study, Dunn et al., (1991) reported a relation between certain types of family interactions and children's subsequent ToM performance. They found that children were more likely to succeed later on ToM tasks if their families were characterised by a tendency to discuss feelings and use causal state language, and if their mothers frequently attempted to control the behaviour of older siblings when assessed 7 months earlier. Differences in understanding feelings were also associated with the discourse measures, the quality of mother-sibling interaction, SES, and gender, with girls more successful than boys. Dunn et al.'s (1991) study is of interest and relevance to this thesis because it provides compelling evidence for the association between early interactions between parent and child, in which the child is exposed to the mothers' use of talk about feelings, and their ability 7 months later to explain the feelings and actions of others (as measured by the false-belief tasks). Whilst it is important to note that these correlations do not suggest a causal link, the results do at least point to the possibility that later perspective-taking skills have been facilitated and encouraged through the conversations in which children participated earlier on. Conversations between mothers and children are not the focus of this thesis, but these studies provide an important context for understanding some of the possible reasons why attachment-related representations have an important influence on subsequent perspective-taking skills.

Dunn (1994) demonstrated a positive correlation between measures of mother-child interaction at 33 months and the child's ability to use false belief in explaining behaviour at 40 months. However, no controls were run for the possible effects of verbal mental age and social maturity and it has also been reported that the amount of pretend play at 33 months was alone a significant

predictor of a child's emotional understanding competence 7 months later (Youngblade, 1993).

It therefore follows that the quality of the mother-child relationship, as measured by attachment representations, will be correlated with the development of ToM skills, with positive attachment representations facilitating the development of ToM skills at an earlier age. Howe (1991) found that the frequency with which preschool children talked about emotion predicted their performance on a task measuring emotional and mentalistic perspective taking ability." The more a child talks of their emotions, the better they will fare on emotional understanding tasks, while the more internal state language they use, the greater their success on false-belief tasks (Dunn, 1996).

Dunn and Brophy (2005) examined whether conversation matters for the early development of ToM and what aspects of these conversational experiences are implicated. These questions arose out of the finding that there are clearly individual differences in children's grasp of ToM, and these are marked by the third and fourth years of life. Wellman et al's (2001) meta-analysis clearly demonstrated that there is a consistency across studies in research on the non-clinical course of the achievement of success on ToM skills, with all children "passing" false-belief tasks by the age of 4-5 years. There is also clearly a group of children who pass these tasks early, and the precursors for this are not yet as well understood. One, previously cited, precursor is security of attachment (Fonagy et al., 1997b). Another possible precursor is children's conversational and narrative skills

1.5.8 Other social contexts for the development of social understanding

The social context in which these conversations about emotions take places is of crucial relevance. One area that appears to be an important context for talking about inner states is discussion of the past. When parent and child have been asked to talk about incidents from their shared past, that involve negative

emotions, this produces talk that has a high concentration of key features for understanding inner states. They contain explicit discussion of the causes of feelings and of mind-emotion connections. A second important social context that fosters talk about inner states is in the joint pretend play between children and their siblings and friends. In this play, where children are constructing a joint narrative together about imaginary characters there is frequently a lot of discussion about what the characters are thinking and feeling and why they act the way they do. Several studies have demonstrated that a high frequency of such play is also related to successful performance on ToM (Dunn, Brown, Slomkowski, et al., 1991; Howe, Petrakos, & Rinaldi, 1998). The precise mechanisms involved in this link between the type of discourse and ToM skills is not fully understood. One question that has been raised is whether it is the explicit discourse about inner states that is important or whether the success of the joint pretence depends on a “meeting of minds” concerning the narrative. Harris (2006) makes the point that the important factor for ToM development in a mother’s talk may not be her use of mental-state terms, but her intent to bring in different points of view to the child. In either case, there is clearly an important relationship between how children communicate with siblings and friends - particularly siblings as Perner et al., (1994) have demonstrated – and developing ToM skills. The relationship therefore between children’s use of emotion in language when talking with friends and siblings, compared with mother and ToM skills, is an interesting area requiring further examination.

Similarly, the extent to which the parents encourage the child to express affect is also significantly associated with both performance on ToM tasks, and secure attachment representations (Bretherton, 1990; Bretherton & Beeghly, 1982; Denham, Zoller, & Couchoud, 1996; Dunn, 1996; Laible & Thompson, 2000). Astington & Baird (2005) investigated the importance of language to ToM in depth. She reported on the many studies that investigate that as children’s language skills develop, they are able to take part in conversation, with both family members and peers, and these experiences allow them to acquire concepts of mental states and the accompanying language for representing them. Studies have therefore examined the exact nature of these conversations, with mothers,

peers and siblings (see Dunn & Brophy, 2005 for a review) and focused on the differences in mental state talk across these different relationships with reference to ToM skills.

1.5.9 ToM and behaviour with others and peers

The emergence of the child's more sophisticated ToM has broad effects, especially in the social arena, where the child's newfound abilities to read and understand others behaviours form the foundation for new levels of interactions with peers and parents. It is probably not accidental that individual friendships between children are first visible at about the time that they also show the sharp drop in egocentrism that occurs with the emergence of the ToM.

Sutton and colleagues (Sutton et al., 1999a, 1999b, 1999c) found that ToM was a predictor of bullying. This was supported recently by evidence from the research of Caravita, Do Blasio and Salmivalli (2010) who found that the ability to comprehend others' mental states predicted ringleader bullying among early adolescent boys. In support of this finding, ToM skills were also confirmed to be positively associated with defending behaviour among both boys and girls (Gini, 2006).

In a study of the associations between ToM and bullying involvement (Andreou, Unpublished Thesis), poorly developed ToM at age 5-years was concurrently associated with being a bully-victim at age 7-years for boys only. In this longitudinal study, poorly developed ToM significantly increased the risk of becoming a victim and in particular a bully-victim by early adolescent years. This finding was regardless of gender and verbal ability and even after controlling for previous bullying involvement. This association did not vary according to the socio-economic environment in which these children grew up. This type of study highlights the importance of ToM skills as a kind of resilience factor in early and later childhood and into adolescence. In clinical populations those children on the autistic spectrum, particularly children and adolescents

with Aspergers syndrome, often present as having been the victims of bullying and this is undoubtedly in part due to their poor ToM skills.

It has been suggested that attributional processes have much in common with the affective-cognitive processing that may be a part of the formation of internal working models (Belsky & Nezworski, 1988). Attributional bias type has been found to link to children's peer relations and social competence (Crick & Dodge, 1994). Troy and Sroufe (1987) found that four-year-olds with secure attachment histories were less likely to be victims or victimisers in bullying relationships, whilst victimisers often had avoidant histories and victims commonly fell in the resistant category. There is at present a lack of research into attachment and bullying behaviours beyond this age group and linking this further with ToM would be an interesting development in the research into bullying. In this thesis, associations are examined between performance on ToM tasks and both popularity amongst the peer group and unpopularity, although it is not known if this 'unpopular' group includes bullies.

1.6. ToM development across the age-range

The large number of experimental studies of children's understanding of mind reflects a common consensus that understanding mental states is essential for everyday social relations. However, despite the ever-growing number of studies in the field of understanding beliefs, or ToM, there is little research that looks at either the stability of this relationship, using a longitudinal design, or at the stability of individual differences in children's mentalizing skills.

As Hughes and Dunn (1998) pointed out, there was a paucity of studies into the development of children's understanding of mental states which have a longitudinal design. Similarly, although for many developmental psychologists, attachment is considered to be a life-span phenomenon that remains an important contributor to an individual's behaviour and their representations of social figures (Ainsworth, 1989), there are few studies with a longitudinal design which look at the stability of individual differences with respect to the

relationship between attachment and other significant variables, e.g., ToM and social competence. This thesis aims to address this gap.

Earlier in this chapter the important developmental changes in when and why children talk about mental states were examined. For example, at 33 months of age, young children's talk about inner states is predominantly with their mothers as the majority of their interaction will be with the primary care giver at this age. By 47 months of age, children show more frequent mental-state talk with their siblings or friends, and this talk will often be in the context of cooperative play (Brown et al., 1996). This finding is supported by the increasing number of studies, which have examined the role of siblings and children's developing understanding of mind. Perner, Ruffman, and Leekam (1994) reported that children from large families passed basic false belief ToM tasks at an earlier age than children from smaller families or with no siblings.

1.6.1 The Importance of Language for ToM development

“It is considered self-evident that language matters for ToM development, not least because language matters for almost everything that human beings do as it is a fundamental human capacity” (Astington & Baird, 2005). The more important question in examining verbal ability as a variable in this thesis is whether there is anything special about ToM that requires language, and whether there is anything special about language that allows ToM to develop?

From a social-cultural approach, children acquire social understanding (or ToM) as participants in the social world. Through language, children discover how minds interact, that beliefs can be changed, desires can be created, and emotions can be invoked in linguistic exchanges (Astington & Baird, 2005).

Both the ToM and the attachment accounts of children's social cognition are concerned with the way in which young children understand other's thoughts, behaviour and feelings. However, although previous studies looking at

precursor abilities to ToM have found an association between ToM ability and attachment representations and attachment behaviour (Fonagy, et al., 1997b; Fonagy & Target, 1997; Fonagy, Steele et al., 1997; Meins et al., 1998), there are important variables that mediate this significant positive association. In fact, to date, the only ability that has clearly been shown to be directly related to ToM competence is language, in that children without language or with impoverished language do not achieve ToM, and neither do nonhuman primates that lack language. Research in this field (e.g., Harris et al., 1989, Cutting and Dunn, 1999) suggests that previous studies have underestimated the importance of verbal ability, although it has always been thought to be essential to control for verbal ability in studies examining the connection between ToM and attachment. Therefore, it should be expected that in the series of studies in this thesis, there will be a clear association between verbal ability and ToM competence. What remains unclear is whether any previously found overlap between the two constructs of ToM and attachment is merely an artefact of a shared connection with verbal ability.

The link between language and ToM is well established (for example, Happé, 1995; Jenkins and Astington, 1996; Astington and Baird, 2005) and the relationship between communicative experiences, within close dyadic relationships and the development of understanding of emotion and mind has also been explored (Dunn and Brophy, 2005). Research on children's emotion understanding has rarely been relationship-specific. A possible relationship-specific use of language, particularly that relating to emotions (both negative and positive) and the development of ToM is less well established. The question therefore of *how* precisely language contributes to the understanding of mind *and* vice versa still needs some clarification.

The social-cognitive component of theory of mind is closely linked to other cognitive or information processing systems, such as working memory (needed for integrating information) and language (Astington and Baird, 2005). The development of the cognitive component of theory of mind begins during the early preschool years when children begin to talk and reason about epistemic

states (Bartsch and Wellman, 1995). By 4 years of age, when young children have the meta-representational capacity to pass false-belief and other related tasks, it is firmly in place. Language plays an especially significant role in the development of this component of theory of mind (de Villiers, 2000; Hale & Tager-Flusbert, 2003).

The small-scale study in Appendix L examines whether children who have a better understanding of emotion and mind might also have a greater use, and access to, affective language with respect to one key attachment figure. In this case, it is hypothesized that those children who use more emotion words (both positive and negative) with respect to their mother, will have better understanding of ToM, and that the same relationship will not exist between their use of affective language about a teacher, or friend, or even self, and ToM skills. Given the significance of the relationship, it might be hypothesised that children will participate in more discourse that explicitly refers to inner states with their key attachment figure – usually their mother – than with any other significant person. We know from a range of studies that children who grew up in families where there was discussion about mental states and feelings, and who actively participated in this type of talk, over time performed more successfully on assessments of understanding mind and emotion (for example, Dunn, Brown, Slomkowski, et. al., 1991; Garner, Jones, Gaddy, & Rennie, 1997); Hughes & Dunn, 1997). Does it therefore follow that those children who have had more conversations about feelings specifically with mother will go on to have greater understanding of mind and emotion, successfully passing ToM tasks at an earlier age? Moreover, is this then reflected in their discourse when talking about their key relationships, such that they will use more emotion words, both positive and negative, when talking about mother compared with other key relationships? A tentative exploration of these questions can be found in Study 4, **which is in Appendix L due to the small sample size of the study.**

When conversing about shared experiences, both the adult and the child have their own representations of what occurred, and they may not agree. When they differ, shared conversation becomes a tutorial in divergent mental representation

of the same event (Thompson, 2006a). Researchers have also found that the style of maternal conversation is adapted to young children's temperamental qualities (Laible, 2004b; Lewis, 1999).

1.6.2 ToM, attachment and later psychopathology

The relationship between attachment status and later psychopathology has been of interest since Bowlby's first study of delinquent boys which started the discussion at the beginning of this chapter. Much of the later research looking at links between attachment status and later disorders of childhood and adulthood have included only samples of boys. Interestingly, there has been a preponderance of studies that have focused on the link between parental representations of attachment and childhood externalising problems (Dozier & Rutter, 2008). Surprisingly little attention has been given to associations between early attachment and later mood disorders, including depression and anxiety (Cassidy, 1995). One study found that preschool children with disorganized or avoidant representations of attachment had the highest levels of anxiety symptoms after controlling for mothers' anxiety, but other than this and a handful of studies, little research has examined this relationship despite it being a topic of major interest to Bowlby himself.

For obvious clinical reasons, there is considerable interest in the predictive link between relationship processes in childhood and psychiatric disorders (e.g., Guillon et al., 2003), particularly those marked by aggression, anti-social behaviour, and delinquency (Donnellan et al., 2005). For example, relationship problems that are associated with attachment disorganization show strong predictive validity from infancy to later psychopathology and social maladjustment (Green & Goldwyn, 2002). There are many studies, too numerous and diverse to go into in detail, which support a link between parental representations of attachment and childhood externalizing problems (Van IJzendoorn et al., 1999; Madigan, Moran & Pederson, 2006; Carlson, 1998; Dozier & Rutter, 2008; Madigan, Moran, Scheungel, Pederson, & Otten, 2007). Disorganized attachment at one year of age was found to be associated with

externalizing behaviour problems at two years of age (Madigan et al., 2007).

This finding echoes a growing body of empirical research on children from diverse populations and of varying ages (see Van IJzendoorn et al., 1999 for a review).

These findings suggest that a parent's attachment status may have implications for child and family treatment, and Routh, Hill, Steele, Elliot, and Dewey (1995) have reported that children of parents with autonomous secure AAI classifications showed greater clinical improvement following intervention. The relevance of attachment status is therefore still strong in examining both aetiology and treatment of childhood disorders. Futh, O'Connor, Matias, Green, & Scott (2008) found links between attachment-related representations and teacher- and parent-reported behaviour problems, with a stronger relationship for the teacher-rated problems than the parent-rated with the attachment scales. Specifically, Futh et al (2008) found a link between disorganization in the attachment narratives and teacher-rated problems.

Insecure classification, especially in the "controlling" (D) group on the Main and Cassidy (1988) attachment classification system for kindergarten-age children has been linked to behavioural problems in high- and low-risk samples (e.g., Easterbrooks, Beisecker, & Lyons-Rugh, 2000). Cohn (1990) and Wartner and colleagues (1994) investigated links between classifications on the Main and Cassidy system and social competence and peer acceptance in school. In both studies, the securely attached children were judged to be more socially competent and accepted than the insecurely attached children.

With specific reference to disorders of conduct, Fonagy and colleagues (1997c) presented a model that links early attachment to later attachment and to criminality. They hypothesized that IWMs of specific attachment figures become more global during the adolescent period and that this leads to a phenomenon discussed as attachment or bonding to social institutions (Hawkins et al, 1995). That is, parent-child attachment bonds are reconfigured as bonds to social institutions such as schools and businesses and to the adults who

represent them (e.g., teachers and employers). The children who lack this bonding to institutions and have poor or deviant peer relations are at significantly greater risk for substance use and criminal activity (Brook, Whiteman, & Finch, 1993). Fonagy and colleagues (1997c) posited that secure attachments facilitate the awareness of the mental states of others and that this mentalizing inhibits the child and young person from carrying out malevolent acts and in turn facilitates more functional, reciprocal relationship building during childhood. The link between insecure attachment and criminality or severe disorders of conduct is not only via insufficient bonding to social institutions, but also via deficient consideration of the needs and feelings of others.

Fonagy and colleagues' (1997c) research proposed further that children with avoidant attachments may be especially likely to follow this route to deviant behaviour. There is as yet little data to support these theories, but they raise interesting questions such as what is the association between mentalizing or ToM and attachment relations in older children? Is this association specific to conduct problems or is it present in other childhood and adolescent disorders as well?

In general, the results of other MSSB studies on emotional symptoms are inconsistent (Oppenheim, Nir, Warren & Emde, 1997; von Klitzing et al, 2000; Zahn-Waxler, Schultz, Fulker, Robinson & Emde, 1996). Using conflict and distress story stems, Hill, Fonagy, Lancaster & Broyden (2007) investigated the link between children with disruptive behaviour problems (DBP) and altered social cognitions that have previously been associated with insecure attachment. The causes of DBP are complex and involve the influences over time between family and wider social processes, and the individual characteristics of the children (Hill, 2002). There are also genetic and environmental influences and the interaction of the two plays an important role in the manifestation of children's behaviour problems. The strategies that the young child (and there is a particular preponderance of DBP in boys compared with girls) develops to cope with social and emotional challenges are influenced by emotion regulation and social cognition. Studies examining the link between attachment and

psychopathology in childhood have often focused on the child's capacity to seek comfort from their parents. However, Hill et al. (2007) proposed that the child's response to different threats designed to elicit fear, anxiety, or distress may be both influenced by attachment security and be directly implicated in mechanisms underpinning the psychopathology.

There are several coding schemes for the MacArthur Story Stem Battery which are discussed in some detail in this thesis, but here it is worth noting that the coding scheme devised by Robinson, Mantz-Simmons, and Macfie (Robinson, Mantz-Simmons, Macfie, & the MacArthur Narrative Working Group, 1996) is relevant when looking at later psychopathology as the aggressive/destructive themes using their scoring method were found by Warren et al., (1996) to be correlated with Child Behaviour Check List (CBCL) externalising scores. Hill, Hoover & Taliaferro (2000) provided a manual, reliability data and rated examples giving the scales of the MSSB. In Hill, Fonagy, Lancaster and Broyden's (2007) study the researchers examined intentionality and levels of aggression in the story stems of DBP boys, finding that DBP boys had elevated aggression and lower intentionality scores across all story stems compared with a non clinical sample. Intentionality refers to the extent to which a child shows evidence of adopting the intentional stance in his story stem responses. For example, in his portrayal of a child running to a parent in response to the "Scary Dog" stem with a commentary "Michael runs to his mother because he is frightened", would get a high score (between 10-12) on intentionality, compared with a description of a child running towards a parents without an explanation which would be rated lower (in the 7-9 range) (Hill et al., 2007). These illustrations are given in an attempt to show how the child's representations may be linked to their underlying attachment, and given the finding by Hill et al., (2007) they suggest there is a direct mechanism that implicates attachment processes in emotion regulation and social cognition, certainly in children with DBP.

Futh, O'Connor, Matias, Green & Scott (2008) examined a group of high psychosocial risk school-aged children with respect to their attachment narratives and a range of

indices of children's behavioural and emotional adjustment, prosocial behaviour and competence. They used the Manchester Child Attachment Story Task (MCAST), the SDQ and peer nominations of popularity. They also took measures of antisocial behaviour in their study. Interesting findings were revealed in the significant association between attachment narrative scales indexing security, coherence and disorganization with the indices of children's behavioural and emotional adjustment, prosocial behaviour and competence. Futh et al., (2008) point to the fact that there is still a paucity of research on the relationship between attachment narratives and behavioural and emotional problems, and the present thesis aims to extend this research by examining associations between attachment-related narratives and indices of children's social competence and behaviour using the measures outlined in Chapter 2. Futh et al., (2008) also highlighted the fact that the research on narratives has often found that a lack of coherence has been linked with psychopathology, emotional understanding and social development in adolescence and adults (e.g., Humfress et al., 2002; van Ijzendoorn, 1995; Greenberg, 1999). Other studies have focused specifically on the story stem narratives of clinical and normal populations and associations with children's social competence, using the MSSB (Oppenheim, Emde & Warren, 1997; von Klitzing, Stadelmann, & Perren, 2007). In these types of studies, themes and coherence and quality of narratives were associated with children's social competence.

Stadelmann et al., (2007) found an association between children's negative representations of parental figures and conduct problems. This association was more predictive of conduct problems than parent-reported family conflicts. They also found that parental representations were unrelated to emotional symptoms. One possible explanation for this lack of association between positive and disciplinary representations and emotional symptoms is that emotional symptoms are more difficult to detect by means of parents' and teachers' assessments than behavioural problems. Stadelman et al., (2007) suggest that it is difficult to detect the narrative characteristics of emotional symptoms. These children may also be less likely to use parental figures in their play narratives. The authors also make an interesting suggestion that has been proposed elsewhere (Humfress et al., 2002) that story stems might reveal

negative thoughts and feelings that are unbearable or frightening for anxious or depressed children, and so they might avoid talking about certain things (Clyman, 2003). A cross-sectional analysis of this same sample showed that 5-year old girls with emotional symptoms often avoided conflict themes in their narratives (Perren, von Wyl, Stadelmann, et al., 2006). Humfress et al (2002) found that a group of adolescents in their study exhibited markedly lower scores on attachment coherence in the attachment interview than was predicted from their mentalising ability in the vignettes used in the study. At follow up they were shown to display a dismissing/avoidant style in the attachment interview. This may be explained by a detachment from the interview as a way of managing distress. It may explain why individuals can mentalise in a non personal context but find it more difficult to generate organised, coherent responses to personal questions about attachment figures.

Less is known about the meaning of coherence in the age-group under investigation in the present thesis. In terms of peer popularity, the number of nominations a child received for being disliked was found to be associated with lower scores on coherence and higher scores on disorganisation (Futh et al., 2008). Coherence did not predict peer dislike independent of disorganization. Further analysis of their results revealed that neither attachment construct predicted peer nominations of dislike independent of verbal intelligence. This is tested out in the present thesis.

The main findings of interest and relevance to the present thesis from Futh et al's study (2008) were that children's attachment narratives were significantly associated with teacher and parent reported conduct problems, the most robust link being with the disorganization dimension of the narrative. They also found that attachment narratives were predictive of reports of prosocial behaviour and peer competence, but in the case of peer reports these associations were confounded by verbal ability. Importantly, the constructs used for interpreting children's attachment narratives were not found to be equally predictive of behaviour adjustment and social relationship problems. They found that

disorganization was the most consistently linked with symptoms and predicted symptoms independent of the other attachment constructs.

There are a few studies in the field, including Warren et al's (2000) study which found correlations between children's distress during the narrative and aggressive/destructive content and parent and teacher reports of behavioural problems. Von Klitzing et al., (2000) found similar findings in a larger sample, but the pattern in their study was only significant for girls.

The majority of this research into attachment-related narratives and clinical correlates is on low risk samples in predominantly white middle-class families. The studies in this thesis have the strength that the sample used was drawn from an inner city school in an area of high deprivation, using an ethnically diverse population.

As the participants are a non-clinical sample no specific analysis of behavioural disorders has been carried out. However, the analysis which focuses on teachers' and parent's ratings of their child's behaviour on the Strengths and Difficulties Questionnaire (SDQ) are of interest in terms of links found between children's specific attachment representations and their current behaviour. A robust finding in previous studies is the association between dysregulated aggressive responses to the MacArthur story stems and externalising behaviour problems. In a similarly low risk, non-clinical sample to the one in the present thesis, destructive themes (aggression, personal injury, and atypical negative responses) were correlated with parent and teacher rated externalising problems (Warren, Oppenheim, & Emde, 1996).

Studies in the present thesis have taken a non-clinical sample of young children, but in examining the relationship between ToM, attachment and indices of behaviour (Strengths and Difficulties Questionnaire, Pianta Student-Teacher Relationship Scale), it will be interesting to note whether there is any support for Fonagy's suggestion of a link between attachment, ToM (or mentalizing) and problems relating to conduct. One might hypothesise that different mechanisms

will be at work in other childhood disorders such as depression and anxiety, where the ability to mentalize may be less relevant.

Hill (2002) examined the causes and maintainers of conduct problems in young children and considered the contribution of individual factors, including impaired verbal skills and deficits in executive functions amongst other factors. One well-established feature of this group of children is deficits in language-based verbal skills and executive function (Lynam & Henry, 2001). The links between verbal abilities and emotional processing may also be important and in a study by Speltz et al (1999) cited by Hill (2002) they found that boys with early-onset conduct problems had poorer vocabularies for describing affective states than control boys. This is thought to be associated with increased aggression through a failure of this group to identify emotions both in the self and in others. This difficulty in being able to identify one's own and other's emotional states could reduce the capacity to reflect on those states, and on the causes for how they came about. This in turn could lead to poorly directed aggression according to Hill (2002) rather than effective problem solving or comfort seeking. This may reduce the child's capacity to modify aggression in the face of another's fear and clearly produces a risky group in this sense. This deficit can in turn lead to difficulties in peer relationships and in establishing a friendship group beyond that with other children with conduct problems.

1.6.3 Individual differences in mentalizing

There are several questions pertaining to individual differences in mentalizing skills. Why do some children develop ToM earlier than others? How do differences in attachment representations relate to peer popularity and ToM? Are there intra-individual differences in how children talk about their relationships and do these relate to skills of understanding others (i.e., emotion understanding in ToM measures)?

Dunn (1996) concluded that relationships are important to understanding of mind, but children use social understanding differently with mother, with sibling and with friend. Also, verbal ability importantly relates to failures in communication with a friend, but not sibling (Dunn and Cutting, 2005).

Dunn and Hughes (1998) examined children's accounts of the situations that caused happiness, anger, sadness and fear in themselves, their friends and their mothers. They found that accounts for self, friend and mother were vastly different, suggesting that emotion understanding could be considered in relation to specific relationships. Dunn and Hughes (1998) empirically tested Harris' (1994) observation that assessments of children's emotion understanding have focused almost exclusively on story characters and not on real life relationships. They examined the themes of children's causal accounts, the agents cited in these accounts and the quality or adequacy of the causal descriptions the children gave for their own emotions and those of their friends and mothers. They investigated how children's understanding of others' emotions varies across their different relationships, given the differences in nature of these various close relationships. Finally, they investigated how individual differences in accounts of emotions are related to children's verbal and socio cognitive skills and gender. These findings are explored further in a small study in Appendix L in which the number of affect words used for parent, teacher, friend are analysed along with other hypothesised associations with ToM and attachment-related representations.

1.7 Mind-mindedness and mentalization

“Imagine what your world would be like if you were aware of physical things but were blind to the existence of mental things. I mean, of course, blind to things like thoughts, beliefs, knowledge, desires, and intentions, which for most of us self-evidently underlie behaviour. Stretch your imagination to consider what sense you could make of human action (or, for that matter, any animate action whatsoever) if, as for a behaviourist, a mentalistic explanation was forever beyond your limits.” (Baron-Cohen, 1995).

Mindblindness, as Baron-Cohen here applied it, was used to characterize autism, but it can be used to characterize failures in mentalizing more generally (Allen, 2007).

The concept of mentalization emerged in the psychoanalytic literature in the late 1960s, but diversified in the early 1990s when Baron-Cohen and Frith and others merged it with research on neurobiological deficits that correlate with autism and schizophrenia. Concomitantly, Fonagy and colleagues applied it to developmental psychopathology in the context of problems in the attachment relationship. Elsewhere, several child mental health researchers such as Slade and Grienberger (2005), Lieberman (2005) and Coates (1998) have applied mentalization both to research on parenting and to clinical interventions with parents, infants, and young children.

It is in the area of mentalization that the two fields of social cognition under investigation in this thesis; attachment and ToM, merge. Mentalizing is the process by which we make sense of each other and ourselves, implicitly and explicitly, in terms of subjective states and mental processes. It is a profoundly social construct in the sense that we are attentive to the mental states of those we are with, physically or psychologically. Mentalization can be viewed as a uniquely human capacity, required for human interaction. Mentalizing is a form of imaginative mental activity, namely, perceiving and interpreting human behaviour in terms of mental states (Fonagy, 1991).

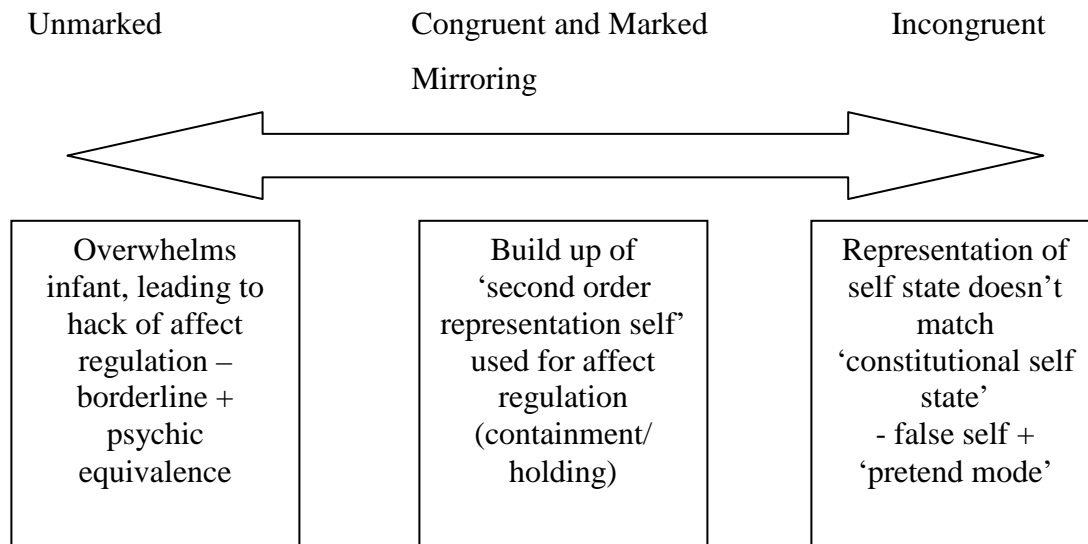
Mentalizing arises within an attachment relationship and from a very early age infants show an interest in events, actions and behaviours that have an intention. An infant who looks at a screen with a bouncing ball on it for example, will look for longer if that bouncing ball is trying to get over a wall. In other words, where intention is involved, it becomes intrinsically more interesting for the human mind.

At what age does this capacity to mentalize begin? Previously it was thought that mentalizing begins around age 4, and this assumption was largely based on the false-belief tasks described in ToM. However, it is now accepted that this age cut-off was more a reflection of the type of tests that were done. We now know that the building blocks of mentalization are there from even the first few weeks when the baby smiles at humans (social beings) in preference to objects. Babies under 12 months also deliberately engage and redirect the attention of their mother or caregiver by pointing and vocalizing. By 2.5 years children often use complex social tactics such as teasing, lying, saving face (Reddy, 2008).

In middle childhood children demonstrate an increase in mentalizing capacity. There is also an increase in the ability to have a thought about one's own thoughts. By 5-6 children will tell 'white-lies' to protect other people's feelings. Equally, they will take other people's feelings into account in their emotional reactions. There is a concept of fairness and justice, for example a child knowing that they should share things out equally. Finally, there is a development and growing understanding of self-conscious emotions such as guilt, embarrassment and pride, and generally an increase in the recognition of emotional states.

The development of the capacity to mentalize works best within a secure attachment and early attachment trauma and abuse interferes with this capacity. Mentalizing is thought to emerge through the interaction with the primary attachment figure via what Gergely and Watson (1996) refer to as the 'social biofeedback model' (see Figure 1.2). This model explains the capacity to mentalize as an 'independent social cognitive adaptation'. It develops best therefore, where there is mind-mindedness in the relationship, and this mind-mindedness evolves by a process of contingent and marked mirroring. These factors build to a sense of affect regulation in the young infant and then a sense of mind and a reflective self.

Figure 1.2 Social biofeedback model (Gergely and Watson, 1996)



Where mirroring is marked (congruent) the mother’s facial expression and behaviour reflects the internally felt state of the infant. It acts as a container for those feelings, but more importantly, the infant, in looking at the mother, sees his own mind reflected there. Where the mirroring is consistently unmarked, (incongruent), there is the development of a false self within the infant.

Dysfunctions of mentalizing are therefore very likely to be entailed in a range of different pathologies of childhood. This capacity for mentalization may be both facilitated and undermined by family relationships. It follows then, that social cognition may be an important focus for both treatment and prevention of childhood disorders. The clinical implications for the hypothesised relationship between the constructs of ToM and attachment are discussed in some detail in Chapter 6.

In a study of what she termed children’s ‘mind-mindedness’ Meins et al., (1998) examined the relationships between children’s mentalizing skills and attachment in terms of their importance in the mother-child relationships. Meins concluded that it was the mind-mindedness that mattered, not the attachment status in terms of children’s capacity for understanding mental states. The assumption of studies such as Meins et al., (2001) is that individual differences in maternal mind-mindedness predate the formation of the attachment relationship. A study

that measures attachment at a purely behavioural level fails in trying to explain individual differences in ToM. Furthermore, in these types of studies it is not immediately obvious why behavioural measures of infant-mother attachment should be related to children's ToM performance 3 years later.

Mentalization has implications for attachment-theory as well as self-development. According to Fonagy (2002) individuals without proper attachment (e.g., due to physical, psychological or sexual abuse), can have greater difficulties in the development of mentalization-abilities. Attachment history partially determines the strength of mentalizing capacity of individuals. Securely-attached individuals tend to have had a mentalizing primary caregiver, and resultantly have more robust capacities to represent the states of their own and other people's minds. Early childhood exposure to mentalization can serve to protect the individual from psychosocial adversity

Lapses in the ability to mentalize occur in everyone from time to time, but an actual deficit in mentalizing, or an inability to mentalize for the majority of the time can cause great difficulties in the young person's ability to relate to others. As mentalizing is an idea that has emerged from the attachment field, but draws on work from the ToM field as well, it is explored in some detail theoretically, and considered as a logical clinical consequence for young people and adults who may be identified as having both distortions in their attachment relationships and/or difficulty with ToM tasks, i.e., those people who find it hard to understand the thoughts, beliefs, desires and intentions of others.

It would be inaccurate to suggest that secure attachment is the only relationship influence on the development of mentalization. It's quite likely that negative experiences such as emotionally charged conflict, may facilitate the development of mentalizing as much as the positive emotions linked to secure attachment. Take the findings of Sutton et al., (1999) for example that show children who have advanced skills of mentalizing (as measured by ToM) are more likely to bully other children. According to Fonagy, Gergely & Target (2008) it is more

realistic to suggest that many aspects of relational influence are likely to be involved in the emergence of mentalizing, and some may correlate with secure attachment.

From a clinical perspective, children are frequently referred to Child and Adolescent Mental Health Services (CAMHS) with problems relating to peer relationships, including bullying and even more frequently for problems relating to conduct and behaviour. Clinical interventions that have been developed in the past have focused largely on modifying the behaviour or on addressing specific cognitions, but more recently approaches have focused on addressing the young person's capacity to mentalize. This is addressed in greater detail in clinical implications in Chapter 6.

1.8 Bringing the constructs together: Linking attachment, ToM and children's popularity amongst peers.

In analyses predicting social acceptance or rejection from both ToM and attachment, there are three possible outcomes. The first is that both models of social cognition predict independently. That is, whatever the overlap between these constructs they function independently in explaining individual differences in peer social status. The second possibility is that the effects of ToM and attachment are completely overlapping, as would be indicated if one construct did not predict peer social status independently from the other. Thirdly, it may be that the effects of one variable are mediated by the other. For example, the finding that secure attachment in infancy promotes more advanced ToM in pre-school (Fonagy et al., 1997; Meins et al., 1998) is consistent with the notion that the association between ToM and social adjustment would be mediated by attachment quality. This thesis examines which of these three alternatives explanations best accounts for the connections between ToM, attachment, and peer acceptance and rejection.

In a recent study predicting friendship quality in autistic spectrum disorders and typical development (Bauminger, Solomon & Rogers, 2010), ToM and secure attachment were found to contribute to the explanation of friendship qualities only through their interaction with the other predictors. Higher verbal capabilities appeared most important to the observed friendship qualities and is a suggested ‘moderator’ in the relationship between secure attachment, ToM and friendships.

Attachment security may act directly, as suggested by Fonagy et al., (1991) and Main (1991), to affect ToM competence, or, indirectly via other social processes, such as increased interaction with siblings, peers or parents which in turn stimulates early mental state understanding by such mechanisms as employment of deception or pretend play.

1.9 Conclusions from the literature so far, and implications for the present thesis.

Tracing the research histories of the three strands of this thesis, it is possible to see that there has been a convergence of these previously distinct fields of research. Most notably this has happened in the fields of research on attachment and ToM. Studies have found both support for a significant relationship between attachment and ToM (e.g., Fonagy et al., 1997a, 1997b, Meins et al., 1998) and for a lack of significant relationship (e.g., Meins et al., 2002). There is a growing body of evidence that maternal mind-mindedness is a significant factor in children’s growing understanding of mental states and subsequent ability to mentalize.

There is still, however, a significant body of work to date that points to the importance of early attachment relationships, particularly with the mother, with respect to the infant’s developing understanding of both others’ and their own mind. Early studies by Ruffman et al, (1999) and subsequent work of Meins (1998, 2008) conclude that there are many beneficial effects of a secure attachment, including popularity with peers in the preschool years, and that this stems from having a better understanding of others’ mental states – and that this

better understanding has been engendered through mothers' responses to facilitating their children's thoughts about others' mental states. It has also been facilitated by the mothers' general tendency toward 'maternal mind-mindedness' according to these same studies (Meins, 1998, 2008).

Infants' understanding that they have a mind that is distinct from their mothers' but one which can be *read* accurately by their mothers, forms the basis of what we call *mentalizing*. The emergence of a clinical intervention known as MBT and MBT-F (Mentalization Based Treatments for Families) from the theoretical links between two constructs has taken place since the inception of this thesis, but is an exciting development in terms of the practical, clinical application of the relationship between these two constructs. As Humfress, O'Connor et al., (2002) point out, the extent to which the constructs of mentalising and attachment are overlapping or distinguishable has yet to be established.

The literature in the field of attachment and ToM has both independently and collaboratively sought to explain how infants and young children come to understand and subsequently function in the social, interpersonal world. The impetus for this thesis is to seek to further understanding of the mechanisms that operate within children and across parent-infant dyads, which lead to either a good or a poor understanding and functioning within the social world for the child. As might be expected, there are many possible variables that lead to a child becoming socially competent, and equally many indicators of this social competence. This thesis has chosen to focus on how children are perceived amongst their peer group as one of the key indicators of social competence as this has been found to be a reliable indicator not only of current but future functioning (e.g., Futh et al., 2008).

Although there is extensive research into the relationships between attachment representations and the development of ToM skills; and attachment representations and peer relations; there appears to be a gap in the literature with regard to studies investigating the inter-relatedness of these three domains, which this thesis attempts to explore. It is an attempt to examine the extent to

which the way children represent their attachment figures is associated with their understanding of mental states and then whether or not this is influential and reflected in their relationships with their peer group.

The use of a representational measure of attachment (MSSB) as opposed to a measure of attachment *behaviour* (Strange Situation) allows for an important examination of the way that young children think about their key relationships and the influence that these representations of their key attachment figure have on their more general understanding of mental states in others, and on the way that they are perceived by others in their social world (i.e., their peers). It also permits an empirical study of both the content and quality of these narratives and for separate analyses on how the various dimensions of the narrative measure are associated with understanding mental states.

Although attachment relationships ultimately become representational in the form of IWMs, as discussed earlier, these models are not stable or well established until 4 or 5 years of age. It would appear from studies that it is the *representational* component of the attachment relationship that is also essential to ToM, and it is the relationship between this component of the two constructs (attachment and ToM) that is specifically under scrutiny in relation to children's relationships with others (peers).

The aim of the first study is to examine the links between ToM and attachment representations, and to examine the independent or overlapping contributions of each construct to peer acceptance in young children. To date comparatively few studies examine links between ToM and peer acceptance and rejection. The current study extends existing research on the social cognitive bases of peer social status by examining the **influential** role of children's ToM.

Social cognitive research from an attachment perspective emphasises not only the affective content of the representations, but also the quality or coherence of the representations. Little is known about the meaning of individual differences in the coherence of young children's attachment narratives, although this

information is typically assessed even in young children (Green, Stanley, Smith, & Goldwyn, 2000) and there is some evidence supporting its clinical relevance (von Klitzing, Kelsay, Emde, Robinson, & Schmitz, 2000; Hill, Fonagy, Lancaster & Broyden, 2007). This thesis examines the association between the affective content of the children's attachment representations and the coherence, or organisation, of the representation, and the extent to which both social cognitive processes relate to peer-popularity.

There is already some evidence for the possible overlapping nature of the two constructs of social cognition. Humfress et al., (2002) examined the degree of possible overlap between these two models using an adolescent population. They administered both **measures** of ToM and child-parent attachment, indexed by the coherence of subjects' narratives about attachment relationships. The results showed that there was significant overlap between the mentalizing and attachment indices of social cognition. This overlap was not significantly mediated by verbal ability or general measures of parenting. This type of study lends weight to the hypothesised inter-related nature of the constructs under investigation in this thesis and the clinical corollary of this relationship is possibly found in the field of mentalization-based treatments.

In a review of the studies on early attachment and relationships with childhood friends and peers, Berlin, Cassidy & Appleyard (2008) argue that the most precise test of Bowlby's original hypothesis that individual's IWMs are mediators for the associations between early attachments and other relationships would come from an analysis of longitudinal data focusing on infant-parent attachment as the sole predictor of later representations of peer or friend relationships. To date, this particular test has not been conducted and the series of studies in the present thesis, although limited by resource and measurement issues, contribute to the body of evidence for a mediational model.

Study 2 in Chapter 4 uses a longitudinal design to examine both the stability of relationships between the constructs, and associations between the key constructs of social cognition between two time points.

Study 3 in Chapter 5 extends the first two studies beyond the relationship between attachment representations and peer popularity and aims to bring together two strands of research concerning social competence - mentalising skills and peer representations, and to investigate which, if either, of these components better predicts the outcome measures. The difference could be conceptualised in terms of social-cognitive or affective-cognitive processing. The study examines whether children with more positive representations of attachment will be more competent and more popular with peers, but crucially it examines those positive attachment representations in relation to the representations held of peers. This small scale study hypothesises that the quality of peer representations will better predict competence than mentalizing skills in general. These are largely unanswered question in the literature to date.

The novel feature of the series of studies in this thesis is that they examine how ToM and attachment representations may jointly or independently predict peer social status. Studies to date have looked at relationships between attachment security and ToM and attachment security and peer relationships, but none have focused on attachment representations and tried to bring these three areas together. In taking this approach, the studies aim to make a contribution to the growing research on the possibly inter-related nature of children's early attachment experience, subsequent representation of this experience and their understanding of mental states and intentions in others, and how this impacts on their competence in the social world. In testing this out empirically this permits an in-depth discussion of the exact *nature* of the constructs, including a re-examination of internal working models which are the heart of Bowlby's original theory.

1.9.1 Summary

This thesis reports the results of a series of related experiments conducted on the subject groups described in each study comprised of primary school-aged children. Associations between the variables were examined at particular time

points in separate studies and also across a two-year period at baseline and one-year follow up. The following Chapter 2 sets out the methodology including a description of the participants and selection procedure, the measures deployed in these studies and their coding schemes. It also describes the procedures for each measure. Any individual methodological differences across studies are described in more detail in the chapter reporting on that particular study.

CHAPTER 2 – METHOD

2.0 Overview

This chapter focuses on the methodology and pays particular attention to the measures used in the series of studies, with a discussion of the development of the narrative story stems and coding schemes. Whilst there is slight variation in the measures used across the studies, according to age of the participants, and to specific research questions, this is a repeat measures design and the same key measures have been used across the studies in this thesis, with participants drawn from the same school, and therefore with the same demographic background.

2.1 Description of the Sample

Prior to beginning data collection, a primary school was successfully recruited in the London Borough of Southwark. This school was used in Study 1, and continued to be involved throughout the course of this thesis. This local primary school is in a large and ethnically diverse inner-city area. Participants for the studies spanned four classes: nursery, reception, year 1 and year 2. Age ranges of the participants vary according to the particular study and are outlined in each study chapter. Broadly, there was an age span of between 46 and 86 months, with some studies having several younger children and some several older. Children were selected at random from each of three age groups (three separate classes in the same school) for Study 1 and from four age groups (across four classes) for Study 2 at baseline and follow up. The school served a largely working-class population at moderate to high-risk for behavioural/emotional problems. There was some racial, cultural and religious diversity among the children. Although no measures of socio-economic grouping or earnings were carried out, the school was in an area where the majority of families were in lower socio-economic groups and this was reflected in the population of the school.

2.1.1. Inclusion and Exclusion criteria

Children were excluded from the study where they did not have spoken English, however, it was not necessary for children to have English as their first language, and indeed many children in the study spoke another language in the family home. Some children, particularly in the younger age group, found it difficult to comply with the test instructions and were distracted at times but this was successfully dealt with by cutting down the time periods which they had to spend attending to tasks.

2.1.2. Participant attrition

Although the aim was to obtain a full battery of tests for all children, this was not achieved due to the poor response rates from parents on the parent SDQ and the numbers of children leaving the school. The smaller sample of children participating in year two of the longitudinal study is explained by both of these factors.

2.1.3. Consent

The issue of consent was addressed in a number of ways. First, consent had been achieved with the participating school through previous conversations with the head teacher. Information was then given to individual parents concerning the main themes of the research and highlighting a contact number if required (see Appendix B). Due to the multi-ethnic nature of this population and the language difficulties that may have arisen from written correspondence, there was also a discussion with the class teacher to confirm that all the parents of the children were aware that the study was taking place and none had requested for their children not to take part in the study. Finally, for the longitudinal study a copy of the SDQ was sent to parents for completion, which again highlighted the involvement of the children in the study.

Whilst consent was obtained from parents it was clearly a more difficult issue to ensure that the children were fully consenting to take part in the study. This issue was addressed by ensuring that conversations took place with the classroom

teacher about the children's general willingness to accompany the researcher. If, however, a child did not seem comfortable with the test sessions during the initial conversations, or when testing began, they were given the choice of returning to the classroom and their wishes respected. Due to the nature of the tasks, however, this rarely occurred and the children seemed to actively enjoy receiving one to one attention and engaging in the doll-play of the story stems. In fact many of the children often wanted to continue with the story telling after the tasks were completed.

2.1.4. Ethical Consent Procedures

Consent for the study was obtained from the Guy's Research Ethics Committee (99/09/05) and is given in Appendix A. As modifications were made to the initial study, renewed consent was obtained. Letters of approval of all amendments to the study are also given in Appendix A.

2.2 Procedure

Parents were given an information sheet and consent form to complete prior to testing (see Appendix B). All children who returned the signed parent consent were invited to participate in the interview-based assessments. None of the parents and children who were approached refused to participate; instead, the primary reason for low participation in the interview assessment was lack of response from parents. The difficulty in getting active consent from parents was consistent with the experience of school personnel. Children participated in one or two interview sessions with the author of this thesis in a quiet room at the school. All data were collected in the late winter and early spring terms. Two days were spent at the school either interacting with the children in each class, or simply observing before beginning each of the studies, and this allowed the children to become familiar with the researcher's presence. The time spent at the school was also important to become familiar with the teachers of the three classes and to locate appropriate rooms for testing around the school premises.

2.3. Design of the Studies

In total, four studies were carried out for this thesis, although two of these are small scale and Study 4 is included in Appendix L. This was a repeated measures design and study 2 is longitudinal with a one-year follow up of the same cohort.

2.4. Measures

Table 2.1 Table of Measures

Attachment-related Representations	MacArthur Story Stem Battery (Bretherton, Oppenheim, Buchsbaum, Emde, and the MacArthur Narrative Group (1990a))
Theory of Mind (ToM):	False belief tasks.(Wimmer & Hartl, 1991) Emotion understanding tasks (Harris, Johnson, Hutton, Andrews, & Cooke, 1989) and Higher order ToM Strange Stories Happé, F. (1994)
Verbal Ability	Wechsler Pre-School and Primary Scale of Intelligence and the Wechsler Intelligence Scale for Children III-UK.
Behavioural Problems	Strengths and Difficulties Questionnaire (Goodman, 1997)
Peer Popularity	Peer nominations task (Asher, Singleton, Tinsley & Hymel, 1979)
Peer Representations	Dodge and Frame's stories (modified by Cassidy et al., 1996).
Classroom and Home Behaviour	Student-Teacher Relationship Scale (Pianta, 1994).

The majority of these measures are well validated and published. There is only one measure that could be considered less valid because children were ranked, (peer nominations task) but this was the best available measure in this type of real world study.

Transcriptions of these measures are included in the appendices and examples are given of different classifications to illustrate the coding scheme for the attachment measure. Before going into detail on the specific measures employed in these studies, there follows a description and critical analysis of the available measures within each field, beginning with attachment-related representations. The discussion in this chapter focuses predominantly on the MSSB, as the coding schemes for this measure vary across other studies, whereas the other measures have the same coding applied across different studies.

2.4.1 Measures of Attachment Behaviour

An important distinction to be made in this thesis is between those measures that measure and classify attachment and those that purport to be *attachment-based* measures which may or may not be measuring attachment security.

Measures of attachment in infancy which produce classifications are based on Bowlby's (1969/1982, 1973, 1980) ethological attachment theory and involve the observation of parent-child behavioural patterns. These commonly used measures include the Strange Situation (Ainsworth & Witting, 1969) and the Attachment Q-sort measure (AQS; Waters, 1987, 1995; Waters & Deane, 1985), both of which give a measure of attachment security.

Ainsworth (1967) used the Strange Situation to study infants' attachments with their caregivers. Three categories of infant attachment were described: 'secure', 'insecure-avoidant' and 'insecure-resistant' (Ainsworth, 1978), each being characterised by specific patterns of behaviour. Further work by Main & Solomon (1986 / 1990), lead to the development of a fourth 'insecure-disorganised' classification, characterised by the disorganised behaviour of the

child in the caregiver's presence. The Strange situation experiment involves two separations from the mother, an interaction with a stranger and a period when the infant is left alone. Consistent with Ainsworth's secure base theory, infants play with more confidence and vigour in the presence of their mother, however, it was the range of reactions observed on reunion with the mother that led to the attachment classification system (Bretherton, 1992).

Researchers have now shown that secure attachment as measured by the Strange Situation is associated with the child's subsequent willingness to explore novel environments, interact positively with adult strangers, enter into positive relationships with peers, and engage in relatively independent problem solving (Maccoby, 1984). The measure has been used in literally hundreds of studies on attachment security and its correlates, and continues to be seen as the most robust, reliable measure of parent-infant attachment security to date.

The procedures described have the limitation of only being effective in assessing the attachment status of young children and attachment theory is less specific regarding appropriate measures of security in children over three or four years of age. The attachment system, although continuing to function throughout the lifecycle, is believed to show a diminishing of sensitivity at this point in children's development. Fewer situations are perceived as threatening and knowledge of the parent's accessibility (rather than actual proximity or contact) is increasingly effective in terminating attachment behaviour. In addition, the broader and more flexible behavioural repertoire of the older child, as well as the child's capacity to comprehend cognitively and therefore to anticipate and coordinate with the parents behaviour, can make it more difficult to perceive the underlying organisation of attachment from observational studies. At the same time, the achievement of language and symbolic operations make it feasible to assess attachment security at the representational level. Measures developed to assess attachment beyond these first two years needed to be developed therefore to focus on the things that children said about their relationships, rather than their behaviour on separation and in reunion with them.

The measures developed to access children's representations about their attachment figures are of two kinds; those based on children's responses to pictured stimulations, and those based on doll-play narratives and enactment of attachment related scenarios. Some researchers have attempted to develop classification schemes to parallel the Ainsworth system. Other researchers have developed scales to reflect aspects of attachment security or related constructs, but have not attempted to understand patterning of responses in such a way as to derive classifications.

2.4.2 Measures of Attachment Representations

One such example of an attachment-representation measure is the Separation Anxiety Test (SAT; Main, Kaplan & Cassidy, 1985; Slough & Greenberg, 1990) which supported the assumption that narrative responses to a semi-projective task reveal important aspects of a child's actual relationship experiences. Reasoning that a task requiring purely verbal responses, even if supported by pictures, might be too difficult for younger children, Bretherton, Ridgeway and colleagues (1990b) devised a series of attachment-related story stems acted out with small family figures and props. This doll-play procedure was originally designed to assess attachment security in 4-year-olds (Bretherton and colleagues, 1990b). This procedure involves a set of five stories, only the last four of which are involved in rating and classification (child spills juice, child hurts her knee, child "discovers" a monster in the bedroom, parents depart and parents return). The Bretherton stories are a subset of the MacArthur Story Stem Battery (MSSB; Oppenheim, Emde & Warren, 1997), a group of 10 stories reflecting a variety of parent-child interactions, which were developed in collaboration between Bretherton and other members of the MacArthur team (Bretherton, Oppenheim et al., 1990). The collection of story stems known as the MSSB has been in use since 1990 but was only published in 2003 (after beginning this thesis). The MSSB has a series of emotionally charged family interactions that focus on parental conflict, child injury, frightening situations, child temptation in the face of parental prohibition, parental emotional unavailability, child oppositionality and child-triggered accidents. Depending on the research

questions under investigation, researchers have tended to include all or some of the story stems, and some have developed their own to address the needs of a specific clinical group (e.g., Hodges et al., 2009).

Broadly, in Bretherton et al.'s (1990) story completion task, children's narratives were considered to reflect secure attachment when the parents were represented by the child as available, interactions were warm, and the child could cope with the stress in the story constructively. The children's narratives were rated as insecure when the children avoided the story issue or it was incoherent and they were not able to bring the story to a resolution. The test-retest reliability for the MacArthur Story Stem Battery in Bretherton et al.'s (1990) study was $r = 0.52$, $p < 0.01$ for positive representations of the mother, and $r = 0.39$, $p < 0.01$ for negative representations of the mother.

Studies using the MSSB have tended to focus on themes emerging from the children's narratives that relate to specific features of a particular clinical group. For example, a study by Schechter, Zygmont, Trabka, Davies, Colon, Kolodji, & McCaw (2007) studied children's responses to story stems on the MSSB where there was a history of maternal interpersonal violence exposure and related PTSD. They found that the children of mothers who had experienced domestic violence and who had severe PTSD showed greater dysregulated aggression, spontaneous elaboration of danger and distress, and avoidance and withdrawal of emotionally-laden familial conflict in their narratives.

In Chapter 1 the measurement of attachment representations was briefly described, with particular emphasis on the organisation of these narratives in terms of children's representations. Here, a narrative measure of children's attachment representations is used as they are purported to be associated with earlier observations of attachment using the Strange Situation Procedure (Slough and Greenberg, 1990, and Shouldice and Stevenson-Hinde, 1992). However, it is important to note that narrative assessments of attachment are as much a measure of how children construct narratives about affective themes and

communicate those to others, as they are assessments of internal representations. There is, however, some evidence for an association between children's narratives and maternal coherence and security in the context of the AAI (Steele, et al., 2003). It is for this important reason that in this thesis the children's narratives are referred to as attachment-*related* representations.

It is generally believed that infants and toddlers include knowledge about their relationships with attachment figures, in terms of enactive or sensorimotor representations. Early in the pre-school years, children begin to use symbolic forms of mental representation and to organise knowledge conceptually (Bretherton, 1985). These conceptual structures and processes can be observed in contexts in which a child is asked to develop scripts for actions and events. As a result of this developmental achievement, it is possible to use assessments that tap internal working models of attachment. Internal representational models of relationships are believed to arise from actual experiences in a relationship. They have been conceptualised as consisting of both specific content, including affect, and information processing rules that integrate and determine perception and memory (Bowlby, 1969/1982; Bretherton, 1984; Main, Kaplan, & Cassidy, 1985). Because of their link to experience, individual differences in these models can be expected to parallel individual differences in a child's actual behaviour with an attachment figure; that is they should be systematically related to measures of attachment security based on reunion and/or secure base behaviour in early childhood and thereafter.

By 28 months children can label internal states in themselves and other as well as provide simple causal explanations for their occurrence (Bretherton & Beeghly-Smith, 1982). Around the same time, the structure of children's play develops to incorporate sophisticated linguistic techniques such as staging and narration (Wolf & Hicks, 1989). In a longitudinal study of normal children's doll play development, the ascription to doll characters of emotions and cognitions (such as thinking, planning, and speculating) was made by most of a sample of 3-year-old children and by all of the children by the time they were 4 ½ (Wolf, Rygh & Altshuler, 1984).

Woolgar (1999) argues that this evidence shows that the sophistication of even very young children's play can give valuable insight into their relationships and beliefs. However, it has also been suggested that it is naive to believe that a child's complex attachment relationship can be determined simply by using young children's answers to sometimes confusing and complex scenarios. Crucially, therefore, it is important to examine both the *content* and *style* of children's narratives in response to the MacArthur Story Stems in order to understand any relationship between cognition and affect. Coding schemes, which will be elaborated on further in this chapter, have been designed specifically to tap into both the content of children's attachment-related representations, and the manner, including affect, in which these narratives are told, including children's social interchanges with the interviewer.

Using doll-play techniques has several advantages including their ability to predict behaviours from children's responses to the story stems (Getz, Goldman, & Corsini, 1984; Mize & Ladd, 1988). Also, the confounding effects of language ability are avoided –studies which have examined children's doll-play narratives in relation to their language development found that verbal ability was unrelated to the measures and did not mediate the relationship between these measures and behavioural adjustment (e.g., Murray, Woolgar, Hipwell, & Briars, 1999; Oppenheim, Emde, & Warren, 1997). Doll play and pictorial story completion tasks have become established as reliable indices of narrative coherence and psychological security with very young and preschool aged children (Bretherton, 1990; Buchsbaum, Toth, Clayman, Cicchetti, & Emde, 1992; Jacobson, Edelstien, & Hofmann, 1994; Main et al., 1985; Solomon & George, 1999; Warren, Emde, & Sroufe, 2000). The evaluation of these narratives has proved to be one way of gaining access to young children's thoughts and feelings regarding emotionally significant relationships (Bretherton et al., 1990).

Rather than labelling the child as 'secure' or 'insecure' these measures assess the child's attachment in terms of 'positive' and 'negative' representations. A

positive attachment representation may be more likely to be representative of a securely attached child, and a negative attachment representation of an insecurely attached child, but these are crude analogies and not yet conclusively proven in the attachment literature. With each new development in the coding schemes, researchers have attempted to capture the most relevant aspects of children's narratives with respect to attachment.

2.4.3 Comparison between narrative story stems and Strange Situation classifications

In the first study designed to assess IWMs using a narrative approach, Main, Kaplan and Cassidy (1985) found that 6-year old subjects who had been classified as securely attached in infancy, gave coherent, elaborated and open responses to the separation pictures and also tended to volunteer information about their own separation experiences. Those classified as avoidant in infancy described the children in the picture of the SAT as 'sad' but could not say what the child might do to cope with the situation. Those classified as disorganised were usually completely silent or gave irrational or bizarre responses.

The conversational patterns of these 6-year-old children's discourse paralleled their Strange Situation classifications in infancy. Where the child was 'secure' in the Strange Situation, the conversational dyads in the narrative approach used were fluent and involved discussing a wide range of topics. The children classified avoidant in the Strange Situation were restricted in their conversations, showing little elaboration and asking rhetorical questions. The children classified disorganised in the Strange Situation had a dysfluent style with many false starts. Oppenheim and Waters (1995) examined the evidence that narrative assessments of attachment rely as much on how children communicate and talk about attachments as what they say. When the content of children's narratives was examined they found that emotionally open (secure) children described both positive and negative aspects of their relationships with relative ease and without anxiety. They also describe themselves in realistic terms (Cassidy, 1988). Interestingly, children who only described themselves in positive terms tended to

be classified as insecure/avoidant on the basis of their reunion in the Strange Situation observation. This raises an interesting question as to what extent these narratives in childhood are a reflection of the mothers' own narratives in adulthood about her childhood experiences, as measured by the Adult Attachment Interview, in which the insecure narratives were also characterised by some idealisation of the attachment relationship.

Various theories arose to explain the differences in children's narratives. Slough and Greenberg (1990) developed the idea of defensive exclusion to explain the insecure children's narratives that reflected difficulties in communication. They proposed that information too painful for the child is excluded from awareness and processing. It is represented in an additional internal working model that lies outside of awareness. Oppenheim and Waters (1995) take an alternative view, and suggest that incoherent responses result from children's difficulties in emotional communication and narrative constructions. Following Bowlby (1988) and Bretherton (1991) they suggest that this is accounted for by disturbances of parent-child communication and co-construction processes that leave children without the emotional narrative skills required to provide a coherent response to the attachment themes that are presented in story or picture form. Oppenheim and Waters (1995) highlight the importance of interpersonal influences.

The shift in emphasis from behavioural to narrative assessments leads to a consideration of two important influences on these narratives; their history of emotional communication and narrative co-construction, and the cognitive bases underlying children's narrative construction.

2.4.4 Cognitive Development and Narrative Assessments

Oppenheim and Waters (1995) raise an important issue in relation to the cognitive mechanisms that provide the basic skills required to construct a story that has great relevance to this thesis. They drew attention to the ToM research and the role of this in children's narratives. Studies of very young children

suggest that by the beginning of their second year children can routinely abstract from recurring events in their everyday life representations of their temporal sequences and expectations about typical outcomes (Fivush and Hudson, 1990; Nelson and Hudson, 1988). Bower and Thal (1990) reported that in children as young as 20 months – whereas the presence of causal relationships made it easier for children to copy simple behavioural sequences demonstrated by the experimenter – similar sequences without causal links proved difficult to reconstruct. Therefore, children as young as 2 are showing the beginnings of an understanding of intentionality and laying the foundations for ToM.

2.4.5. Coding schemes for the MSSB

There is no universally accepted coding system for the narratives in the MSSB, and the selection of specific stories has varied across studies, but there are two **principal** types of coding: dimensional and categorical. In the dimensional approach, narratives are rated on preselected dimensions such as coherence, negative or positive themes, and the quality of the relationship with the examiner. In the categorical approach, stories are typically classified into attachment categories based on theoretical judgment of what kinds of scripts should be representative of each attachment group.

With respect to narrative coding systems, validity has been examined for the MacArthur Story-Stem battery (Bretherton et al., 1990) and coding system (Robinson, Mantz-Simmons, Macfie, & the MacArthur Narrative Coding Group, 1992). Validity is supported by findings showing that factor analyses of story themes in studies using the MSSB have isolated three similar dimensions: “prosocial” (help and empathy); “discipline” (non-physical discipline and compliance); and “aggressive” (anti-social behaviour, personal injury and atypical negative themes) (Oppenheim, Emde, & Wamboldt, 1996; Oppenheim, Emde, & Warren, 1997; Oppenheim, Nir, Warren & Emde, 1997; Woolgar, Steele, Steele, **Yabsley**, & Fonagy, 2001). Studies using this system have also revealed a number of associations between narrative themes, coherence and the quality of parent-child

interactions (Oppenheim, 1997; Oppenheim, Emde, & Wamboldt, 1996; Oppenheim, Emde, & Warren., 1997, Woolgar et al., 2001). Studies such as that of Schechter, Zygmunt, Trabka, Davies, Colon, Kolodji and McCaw (2007) have drawn on the coding schemes used in prior studies with similar populations (in this case an inner city population) and used subscales based on responses in those studies (Robinson, Herot, Haynes, & Mantz-Simmons, 2000). **Schechter** et al., (2007) following Robinson et al (2000) used three content dimensions ('dysregulation aggression', 'danger and distress' and 'avoidance/withdrawal') and in addition used a content dimension measuring 'narrative coherence'. In **Schechter** et al's (2007) study they found narrative coherence to be inversely associated with attachment disorganisation on another test of attachment (the Family Attachment Drawing Task – FAD-T, Fury et al, 1997). Schachter et al., (2007) concluded that the MSSB was a useful clinical and research tool, particularly in their study assessing the child's representational world in the wake of trauma affecting their caregiver. It is important to note that much of this work took place after the studies in the present thesis were designed and the coding scheme selected.

Studies using categorical narrative coding systems have made substantial progress in differentiating representational model scripts indicative of the secure and insecure attachment groups with both preschool and school age samples (Ammaniti, **Speranza**, & Fedel, 2005; Bretherton, Ridgeway & Cassidy, 1990; Cassidy, 1988). Although studies have led to further clarification of representations reflecting the insecure-avoidant and insecure-disorganized patterns of attachment, the researchers in these studies have noted difficulties in identifying criteria for the identification of the ambivalent classification. In addition, the use of different systems of categorical classification has contributed to ambiguity in comparing results of different studies (Moss, Bureau, Beliveay, Zdebik, & Lepine, 2009). Although some studies have validated their categorical systems by showing the links with other types of representational measures such as projective measures, questionnaires or maternal representations (Cassidy, 1988; Goldwyn, Stanley, Smith, & Green, 2000; Granit & Mayseless, 2001), few studies have verified the correspondence between representational measures and attachment behavioural patterns (Bretherton, Ridgeway, & Cassidy, 1990;

Cassidy, 1988; Gloger-Tippelt, Gomille, Koenig, & Vetter, 2002; Solomon et al., 1995). This raises the issue of whether these attachment constructs reflect a consistent core conceptualization of attachment security (Thompson & Raikes, 2003). To date, only one study by Solomon et al., (1995) has verified behavioural-representational attachment correspondence based on a four-way classification. This study by Solomon et al., (1995) did not examine correspondence between attachment representations and children's adaptive behaviour.

Tracing the development of coding schemes for the MSSB, there have clearly been some significant advances in the manuals since beginning the series of studies in the present this thesis. The coding scheme employed in the following studies followed Oppenheim and colleagues' (1997), Hill, Hoover and Taliaferro, (1999) and Robinson, Mantz-Simmons, & MacFie, (1992) as these were available at the time of the studies' design. However, Table 2.2 on the next page shows the history of the coding schemes for this battery, and the revisions that have been made.

Table 2.2 Development of the MSSB coding schemes

Year	Authors	Contribution to Narrative coding
1996	Robinson, Mantz-Simmons, MacFie and the MacArthur Narrative Working Group	Developed coding scheme.
1997	Oppenheim, Emde & Warren	Proved the validity of this method, emphasizing both content and performance.
1998	Hodges, Steele, Hillman, & Henderson.	Gt. Ormond Street group with Anna Freud Centre – developed a coding scheme for severely abused children.
2000	Hill, Hoover, & Taliaferro	Based on Robinson, Mantz-Simmons & Macfie, decided to focus on ‘intentionality’
2001	Woolgar, Steele, Steele, Absley & Fonagy	Provided more support for narrative working group/Oppenheim by finding 3 similar dimensions (prosocial, discipline and aggressive) and narrative coherence.
2003	Robinson and Mantz Simmons	Manual update
2006	Minnis, Millward, Sinclair, Keendt, Greig, Towlson, Read, and Hill	Coded by using Hill’s manual, coders trained by J.Hill. Major themes avoidance, intentionality and coherence
2008	Greig ,Minnis, Millward, Sinclair, Kennedy, Towlson, Reid and Hill	Avoidance, intentionality and coherence
2009	Moss, Bureau, Beliveau, Zdebil and Lepine	Very similar themes to Oppenheim in factor analysis and narrative coherence.
2010	Minze, Mcdonald, Rosentraub and Jouriles	Used the Robinson and Mantz-Simmons 2003 updated scheme

Aside from these developments in the coding schemes and content of the MSSB other studies have modified the battery to include, for example, a neutral Story Stem (Bar-Haim, Fox, VanMeenen, and Marshall, 2004). These researchers modified the MSSB to enable them to compare neutral and emotionally laden contexts. Reading the growing body of research studies including this battery reveals that the selection of stories and content are often adapted to best address the research questions under investigation. Hodges, Hillman, Steele and Henderson (2007) have adapted the MSSB and included five of their own stories to comprise the Story Stem Assessment Profile. This has been used primarily as an assessment for use in legal courts and also to look at the sequelae of earlier abuse. They wanted specifically to distinguish between children experiencing a greater or lesser degree of abuse. The same tool has been used by the authors and others however, (Steele, Hodges, Kaniuk, Hillman and Henderson, 2008) in a study of adopted children.

Hodges et al., (2007) have used a thematic coding scheme which has 39 codes which are individually meaningful and can be combined to form constructs, including indicators of security of attachment, insecurity, defensive avoidance and disorganisation. In the security construct for example, the child seeks help, the adult gives affection, and there is an acknowledgement of distress in both child and adult, amongst other features. In the Adoption and Attachment Study (Hodges, Steele, Kaniuk, Hillman and Henderson, 2008) the story stems were used to track changes in the attachment representations of maltreated children over a two year period in adoptive families. Some extremely interesting findings from this study include an increase in mean “security” scores **from baseline to one year follow up**, also a lack of change in insecurity and disorganisation scores. The important finding in this study is that the changes are related to the attachment organisation of the adoptive parents (on the AAI). Where both adopters were rated as insecure, children remained insecure and disorganised in their themes. This relationship between children’s narrative responses to the story stems, and the AAI of their new attachment figure is an extremely important one, both clinically and in research in terms of the relevance of measures of attachment-related representations.

In Hill, Hoover & Taliaferro's (2000) revised manual for the MacArthur Narrative Completion Task there were five major categories of coding:

1. Coding of Processes – this category includes scales for coherence; affect regulation; avoidance; development of interpersonal themes; aggression; escalation of conflict and escalation of danger.
 2. Coding of Intentionality of Actions – this category includes scales for events without agent; parental involvement scales (positive, negative and neglectful parental involvement); child efficacy; narrative repetition; embellishment and narrative shifts.
 3. Story Content Coding – this category includes positive and negative codes with the positive codes including a measure of mentalization.
 4. Coding of Narrative Style – this category includes scales for narrative repetition; embellishment and narrative shifts.
 5. Coding of Performance – this category includes a scale for control/oppositional behaviour; inattentiveness/hyperactivity; controlling behaviour and distress/anxiety.
- Finally, the global warmth/friendliness of the child is coded to get a “macro” impression of the child's friendliness, warmth and engagement with the examiner.

Given the inclusion of a measure of mentalization in this revised manual as well as the intentionality of actions which reflects statements about the way a character thinks or feels, it would have been highly appropriate to have used this manual for coding the MSSB narratives in this thesis' studies had this manual been available to the researcher at the time. However, these developments came later, and will therefore be discussed further in the discussion and critique in Chapter 6 of this thesis.

2.4.6. Attachment-related representation measure in the present studies

Children's attachment representations of parents were measured using 8 stories from the MacArthur Story Stem battery (MSSB; Bretherton, Oppenheim, Buchsbaum, Emde and the MacArthur Narrative Group, 1990; see appendix C).

The 8 story stems selected for these studies were as follows: spilt juice (the child makes a mess), mum's headache (conflict between parental and peer desires), three's a crowd (friend wants to exclude child's younger sibling), burned hand (child burns hand touching forbidden food), lost keys (parental argument), bathroom shelf (child forbidden to touch bathroom shelf, but sibling has a cut and asks for a plaster from the bathroom shelf), exclusion (child sent to bed, so parents can have some time alone together) and burglar in the dark (night-time and child hears a sound, parents are downstairs, is proximity sought?). These story stems all present dilemmas for the child, including social dilemmas, and test the child's moral understanding as well as the psychological accessibility of the parent. Oppenheim et al., (1997) developed a coding scheme from the narratives of the 200 analysed in their study, comprising nine categories which described children's descriptions of their mothers: Protective, Caregiving, Affectionate, Helpful, Forgiving, Physically Abusive, Verbally Abusive, engaging in Bizarre/Atypical Negative behaviour, and Disciplinary (see Appendix C for examples of transcripts and coding). The burglar in the dark story stem is a British translation of the 'Monster in the Dark' story in the United States version.

Robinson and Mantz-Simmons (2003) point to the importance of making culture-specific and sample-specific adaptations to the MSSB to ensure that the examiner and child are able to share meaning within their culture about the events. In an analysis of more than 5,000 play narratives elicited by eight MSSB story stems (von Klitzing, Kelsay and Emde, 2003), similarities and differences were shown between the content themes and performance characteristics these story stems elicit. The differences confirm that different stories can elicit different themes and representations (von Klitzing et al, 2003), and that a battery of story stems will be likely to capture the richness of the child's inner world. Spilled juice for example has the highest number of positive parental representations and an above average number of limit-setting themes. This same story elicits fewer affection themes. Bathroom shelf and Exclusion are the two story stems that elicit narratives dominated by compliance/noncompliance

themes. Lost Keys and Three's a Crowd elicit the highest number of aggressive themes. In Bathroom Shelf and Exclusion the common theme is a dilemma between the necessity of compliance toward the parental rules on the one side and empathy with the injured sibling (Bathroom Shelf) or the wish to be close to the parents (Exclusion) on the other side (von Klitzing et al, 2003).

There is a significant amount of debate as to whether this measure, or similar measures are, in fact measuring the child's representation of an attachment figure *per se*, or whether they provide access to the representational states at the particular point in time the child is assessed (George, Kaplan, & Main, 1985). There continues to be a growing body of evidence to support the view that children's ability to communicate openly and coherently about interpersonal topics is linked to their security and to the prenatal, narrative state of mind of their caregiver (See Bretherton & Mullholland, 1999; Steele et al., 2003).

The battery has been widely used to examine children's feelings about emotionally significant relationships. During a warm-up period, the examiner tells the child that they are going to play together. The child is told that the examiner will start some stories and then ask the child to finish them. To begin the task, the examiner introduced each of the dolls and named each doll after the relevant family member in the child's family. After the appropriate props and dolls have been set up, the examiner (who has memorised the script) tells the child the story beginning and the child is invited to "Show and tell me what happens next". Non-directive prompts are permitted to facilitate the child's story telling. Where appropriate, the examiner asked, 'is that the end of the story?' or 'does anything else happen?' The examiner maintains an animated approach to maintain the child's engagement. The stories were audiotaped for later transcribing and coding.

2.4.7. Coding scheme in the present studies for the MSSB

Various schemes have been used to code story stem responses as outlined above, although there is general consensus on a number of specific codes. Following

previous research (Oppenheim et al., 1997), the child's narrative representation was coded as indicating Positive (protective/caring, affection and helping), Negative (rejecting, conflicted), and Disciplinary (limit-setting, punishment) themes. The presence or absence of each of these categories in each of the narratives was coded either present ("1") or absent ("0") for each of the story stems. A theme was scored only once irrespective of the number of times it appeared in the story. A composite score for each representation, 'positive', 'negative' and 'disciplinary' was obtained by summing the number of occurrences of the relevant content themes over all 8 story stems. In Oppenheim et al's (1997) study and later in von Klitzing et al's (2007) research, associations were found between these content dimensions and children's subsequent behaviour, and were based on parenting styles which varied along global dimensions of parental warmth and control. In general, the dimensions used in Oppenheim et al's (1997) study were based on the premise that the authoritative style of parenting, which combines high levels of warmth with moderate to high levels of discipline and control, is associated with the highest levels of children's social competence and overall adaptation when compared to other parenting styles (for a review, see Maccoby & Martin, 1983; Lamb, Ketterlinus, & Fracasso, 1992).

In addition to the three content themes above, following others (Hill, Hoover and Taliaferro, 1999; Robinson, Mantz-Simmons, & MacFie, 1992; von Klitzing et al., 2000) four dimensions concerning the quality of the child's narrative were also coded. Story organisation was defined as an organised, coherent story that made sense and could be easily followed by the rater. This dimension is used in analysis of story narratives and narrative coherence has been a special focus of research on attachment in children (Green et al., 2000; von Klitzing et al., 2000). Key Issue was defined as the extent to which the child acknowledged the central conflict or theme of the story in the course of his/her response. Story Resolution defined the extent to which the child was able to come to a resolution to the story. Bizarre/Atypical indicates the extent to which the child introduced a bizarre, atypical or otherwise odd element into the story that was incongruent with the story stem. For each story, the 4 narrative codes were scored on a 4-

point scale (1=very uncharacteristic, 4=very characteristic) and then averaged across all stories to form a composite rating to be used in analyses.

2.4.8 Inter-rater reliability

Three independent raters coded transcripts of children's responses to the stories. Inter-rater reliability for each of the dimensions was acceptable, ranging from .68 to .98 across the theme and narrative scales, with mean of .84. The four narrative codes were moderate to highly correlated (r 's [$N=12$] range from .39 to .69) and were therefore averaged to form a Story Coherence composite (internal consistency [α] was .83).

2.4.9 Procedure for administering the MSSB

The procedures for the MSSB, followed throughout the series of studies in this thesis, closely followed those set out in detail by Oppenheim, Emde, and Warren (1997). The protocol is set out in Appendix C along with details of the coding scheme.

2.5 ToM measures

ToM ability has most frequently been assessed using experimental tasks known as false-belief tasks (Baron-Cohen et al., 1985). These tasks measure an individual's understanding that others can view the same situation differently to oneself and as such others can have false beliefs. In order to pass such tasks, children need to be able to hold their own belief as separate from the beliefs held by others (Happé, 2003).

First-order ToM is the ability to know what one person is thinking or believing. First-order refers to the fact that one person is inferring another person's mental state (Baron-Cohen et al., 2000). Two frequently used first-order false belief tasks are the content change (Smarties task) and location change task (Sally-Anne task, Wimmer and Perner, 1983). In order to pass such tasks a child must

demonstrate the ability to attribute a false belief about the contents or location of an object to another.

Belief-desire reasoning tasks (Harris et al., 1989) require the child not only to attribute a false-belief to a character, but also to infer an emotion based on that false-belief. In this sense, they are slightly more demanding than the simple false-belief tasks. In other words, they ask the child how does the character *feel* once s/he knows that they are mistaken. Between the ages of four and six years, normally developing children are able to successfully pass such tasks (Harris, 1989).

Second-order ToM relates to the understanding of one person's thinking about another person's thoughts (Baron-Cohen et al, 2000). Between the ages of 5-7 years, children are able to successfully pass these second order false belief tasks, recognising that a character *thinks* that another person *thinks*. By way of an illustration consider the story of a boy, granddad, grandmother and baby in a pram. The child is told a story that involves the grandmother and baby going to the park, whilst granddad sits in the front garden and the boy stays inside the house. After a while the grandmother returns and explains to the granddad that the park was shut and she is taking the baby to the sea instead. Whilst granddad is asleep the boy sees his grandmother from the window and she tells him that they are going to the sea. After a while the boy decides to join his grandmother, and runs past his granddad and says he is going to see his grandmother. The child is asked, "Where does granddad think the boy will go?" To pass this task, the boy would recognise that granddad *thinks* that the boy *thinks* his grandmother is in the park and that the boy wants to see his grandmother so he will go to the park.

Research studies on ToM development most commonly use false-belief tasks, and some of these studies use only single tasks to assess ToM development. Others support the view that a test battery of ToM is better and this approach uses aggregate scores e.g., Hughes et al., (2000). Aggregate scores have been shown to increase reliability (Rushton et al., 1983) and are considered to reflect

less error variance and to provide more accurate measure of actual ability in ToM research (Hughes et al., 2000). Adopting a test battery approach, therefore, with the inclusion of a range of ToM measures, is useful for following development and exploring the consequences of individual differences in children's understanding of mind (Hughes et al., 2000).

2.5.1 ToM tasks in the present studies

ToM was assessed over the first three studies in this thesis using two first-order standard false belief, two standard emotion false belief tasks and Happé's Strange Stories (Happé, 1994) which measure higher order ToM skills.

False-Belief (cereal box, smarties). The two first order false belief tasks are based on an unexpected contents theme (Wimmer & Hartl, 1991). In the cereal box task, the child is presented with two boxes, one is an empty cereal box and the second is a plain box with cereal in it. The child is asked to guess which box has cereal in it, and is then invited to check to see if the guess was correct. The child then discovers that the cereal box is empty and it is the plain box that has cereal in it. Subsequently, the child is introduced to another character, a hand puppet the same gender as the child. The child is asked, "Look, here's (name). S/he just woke up and s/he wants her/his breakfast. Where do you think s/he will look for the cereal?" This is followed by the control question, "Will s/he find the cereal?" The coding follows **Bartsch** and Wellman's (1989) procedure in which the child passes this test if they correctly answer both test and control questions. A second false belief task was based on the same structure but instead is based on a container of chocolates (Smarties) that actually contains pencils.

Emotion false-belief (Mickey and Elmer, Sooty's lunch). The 'Mickey and Elmer' emotion-understanding task was administered using materials and following procedures described by Harris et al., (Harris, Johnson, Hutton, Andrews, & Cooke, 1989). Harris et al., (1989) reported that the majority of 6-year-olds and a minority of 4-year olds could understand that a character would

exhibit emotions that were based on his/her beliefs concerning the situation rather than the direct features of the situation. The child was introduced to Micky-the-monkey, “a very naughty monkey (who) likes to play tricks on his friends” and Elmer the elephant, whose favourite drink is coke. A memory control question is asked first to check that the child understands the appropriate emotion associated with Elmer drinking his favourite drink, “How does Elmer feel when he drinks a can of coke (happy/not happy)?”; this is followed by the justification question, “Why does he feel happy/not happy?” The child was then told the story: “One day, while Elmer was out on a walk, naughty Mickey the Monkey decided to play a trick on Elmer. Now, Mickey knows that Elmer really hates milk. Mickey went to the fridge and got some milk. He poured milk into the empty can. Then he put the milk away and went outside to watch Elmer through the window. Elmer came home and is very thirsty. He sees his coke can on the table but he can’t see what’s inside the can”.

The child was then asked to make and justify two predictions about Elmer’s emotion. The first test question asked the child to predict how Elmer feels: “When Elmer comes back from his walk and first sees the can, how does he feel?” The child was then asked a justification question, “Why is Elmer happy/not happy?” The child is then asked the second test question, referred to by Harris et al., (1989) as the basic desire prediction question: “How will Elmer feel when she has had a drink from the can?” This is followed by a second justification question, “Why will Elmer feel happy/not happy?” A child was deemed to have passed this test if they correctly answered both test questions and gave appropriate justifications and passed both memory control questions. The second emotion false belief task, Sooty’s lunch, is based on a similar structure, although in this case the emotional false belief task is for a positive rather than negative false belief.

Happé’s Strange Stories (1994). These stories are used to test higher order ToM skills, measuring the child’s ability to recognise the different motivations behind utterances that are not literally true. The vignettes cover a range of situations, for example, white lies, jokes and misunderstanding. In the white lie scenario,

for example, a child in the story doesn't like her aunt's new hat but says that she does. Participants are asked to explain why. Responses are then coded according to whether they are appropriate or not, and are mental or physical state justifications (a correct mental state justification in this case would be that the child does not want to hurt her aunt's feelings). There were therefore four categories of response, and total numbers of responses in each category were analysed. Six stories were taken from the set that covered a range of performance by the normal participants in the original study. The rationale for this was to avoid ceiling or floor effects. The stories chosen were double bluff, persuasion, sarcasm, figure of speech, contrary emotion and white lie. They are set out in full in Appendix I.

2.5.2 Coding ToM measures

Children's scores on the 2 false belief and 2 emotional false belief tasks were summed to form a composite ToM measure. The use of the composite score is supported by a substantial overlap between the false belief and emotional false belief scores ($r(36)=.62$, $p<.01$) and by the fact that the false belief and emotional false belief scores had essentially identical relations with attachment and peer nomination variables. All subsequent analyses are based on the ToM composite scale. Previous studies using the same standard ToM tasks have found that performance across these tasks is highly correlated (e.g., Carlson & Moses, 2001; Hughes & Dunn, 1998; for studies employing similar composite measures, see Astington & Jenkins, 1999; Carlson & Moses, 2001; Cole & Mitchell, 2000; Cutting & Dunn, 1999; Dunn, Cutting, & Demetriou, 2000; Hughes & Dunn, 1998). The aim was to give a picture of ToM performance across a range of tasks, which are thought to tap a common underlying cognitive capacity (e.g., Perner, 1991).

2.6 Peer acceptance and rejection

Children's acceptance and rejection by peers was based on the peer nomination method (Asher, Singleton, Tinsley, & Hymel, 1979; Coie, Dodge, & Coppotelli,

1982). Peer popularity methodology is effective from preschool-age children. All children in each of the three classes were asked to nominate three “favourite” and three “least favourite” children in their class. To aid the younger children, class-group photographs were used. The number of favourite and least favourite nominations for each child were standardised within class to allow comparisons across classes.

Coding

Each child was given two scores, corresponding to the total number of times they appeared on the positive and negative nominations lists. The class were then ranked on two scales, a popularity scale (1= most popular and 30 = least popular); and an unpopularity scale (1= most unpopular and 30 = least unpopular). These scores were randomised over the entire sample in order to obtain standardised ranks, allowing comparison of the group as a whole (Dodge et al, 1996).

2.6.1 Peer representations

There were six stories based on those used by Dodge and Frame (1980) to tap attributional bias in peer representations, modified by Cassidy et al (1996). The measure was obtained from the original authors and the wording was then anglicised. The first three stories involve familiar peers (classmates) and the second three stories involve unfamiliar peers in public places (a shopping centre, a cinema and a toy shop). Stories were counterbalanced within the questionnaire. The total possible range of scores was 6-18, with high scores taken to indicate negative representations of peers. Full details are given in Appendix F.

2.7. Verbal ability

Children completed the vocabulary sub-scale of the Wechsler Pre-School and Primary Scale of Intelligence (WPPSI) and the Wechsler Intelligence Scale for Children (WISC-III). The “vocabulary” subtest of the Wechsler Intelligence Scale for Children (WISC-III, Wechsler, 1992) or the Wechsler Preschool and

Primary Scale of Intelligence – Revised (WPPSI-R) (Wechsler, 1990) was used as standardised tests of children’s cognitive ability on sub-scales of verbal ability. The procedure involved a set of visually and verbally presented stimuli to which the child is required to give verbal responses. Scales scores were used in analyses.

Scoring

The total score for each test was simply the sum of the scores achieved and a standardised coding system enabled calculation of age-equivalent scores, giving an indication of the child’s verbal ability (vocabulary subtest) IQ. Scaled scores were used in analyses.

2.8. Measures of behaviour and social competence

Aside from using peer popularity as an index of social competence, **parents’** and **teachers’** responses to the Strengths and Difficulties Questionnaire and Pianta Student Teacher Relationship Scale were used as additional indices of children’s social competence.

2.8.1 The Strengths and Difficulties Questionnaire

Strengths and Difficulties Questionnaire (SDQ) (Goodman, 1997) was administered. The parent and teacher versions of this measure were given to obtain an indication of the children’s behaviour, hyperactivity, conduct, peer relations, emotional problems and social abilities. Incomplete data is available on this measure but analyses have been included of the subset of children where this data was available.

The parents/guardians of each child were sent the parental SDQ with a covering letter at the beginning of data collection. Approximately two months later reminder letters, pre-paid return envelopes and repeat questionnaires were sent

to the parents/guardians who had not initially responded. The teachers of each class were asked to complete both the teacher SDQ and the Student Teacher Relationship Scale for each child.

The SDQ involves a series of 25 questions which can be graded on a three-point scale from 'not true' to 'certainly true' (Appendix G). Scoring is shown in Appendix G. This questionnaire is a measure of psychiatric disorder in young children. The data produced by the questionnaire can be separated to calculate five factors measuring pro-social behaviour, hyperactivity, emotional symptoms, conduct problems and peer problems. The SDQ has been shown to have high concurrent validity with other well established questionnaires measuring psychiatric disorder (e.g., Elandor & Rutter, 1996; Child Behaviour Checklist) that have also been shown to have high reliability and validity. Reliability for the SDQ has been demonstrated through internal consistency (mean Cronbach's alpha: 0.73), cross-informant correlation (mean: 0.34) and retest stability after 4-6 months (mean: 0.62) (Goodman, 2001). In a study by Goodman, Ford, Simmons, Gatward and Meltzer (2000) the SDQ was found to have 94.6% specificity when identifying psychiatric diagnosis when compared with independent psychiatric diagnosis. The questionnaire has been shown to be a reliable and valid measure for screening school populations (e.g., Goodman et al, 2000) and has been further validated cross culturally in numerous countries (e.g., Garcia et al, 2000).

2.8.2 Student Teacher Relationship Scale

The Student Teacher Relationship Scale (STR; Pianta, 1994; Pianta & Nimetz, 1991; Pianta & Steinberg, 1992) consists of 30 questions rated on a five-point scale. From this scale Pianta developed three sub-scales measuring conflict/anger, closeness and dependency. These subscales have been shown to be associated with independent measures of classroom and home behaviour. For example, relationships characterized by security were related to child affection toward mothers, and competence behaviours in the home and in kindergarten. Dependent relationships between teachers and children were related to child

negativity with mothers, acting-out behaviours in the home, and behaviour problems in school (Pianta, 1994; Pianta & Nimetz, 1991; Pianta & Steinberg, 1992). This scale is the most widely used in the research examining teacher relationships with young children, especially concerning attachment type studies (see Howes, 2000 for a review).

The Student-Teacher Relationship Scale (STRS) (Pianta, 1990) was used to ascertain the teachers' perception of their relationship with each child in terms of closeness, dependency and conflict. Due to the poor completion rate by the teachers, there is not complete data on this scale and it is only reported on in Study 2.

2.9. Approach to statistical analysis

In this thesis there are four studies with sample sizes that vary between 16 and 56 and vary in design from cross sectional to longitudinal. There are a number of statistical issues that arise when conducting real world studies with smaller samples. One of the negatives of this smaller sample size is that it is not possible to have very great confidence in the results, and so Type I errors are likely with some associations found due to chance. Because of the sample size I would expect to only pick up medium to large effects (reliably statistically).

In the series of studies reported in this thesis, the majority of the measures used are widely used in the literature and are of known reliability and validity. The dependent measure 'peer nominations', whilst being widely used in the literature (Prinstein & Dodge, 2008) has more questionable psychometric properties in that it involves rank ordering by children. In order to render this measure appropriate for analysis using parametric statistics, the rank orders were standardised across the whole sample.

In order to establish that use of parametric statistics is appropriate with this measure, distributions were examined for the key variables. For Study 1, Table 2.3 below sets out the skewness and kurtosis statistics which for these variables show data that has a normal distribution. In summary, across the various measures there was normal

distribution and as the distribution of data across the variables was within the accepted range, it was not necessary to transform the variables in order to achieve a normal distribution.

Table 2.3 Skewness and Kurtosis statistics for Study 1

Measure	ToM	MSSB NC	MSSB Disc.	Story Org.	Peer Neg	Peer Pos	Vocab.	TSDQ Prosoc
Skewness	.493	-.324	.168	-.228	.772	.276	.437	-.726
Kurtosis	-1.01	-.360	-.750	-.462	-.155	-1.01	.709	-.750

**Key: ToM=Theory of Mind, MSSB NC = MSSB Narrative Coherence
MSSB Disc. = MSSB Disciplinary dimension, Story Org= MSSB Story
organization, Peer neg= negative peer nominations, peer pos= positive peer
nominations, vocab=vocabulary scores, TSDQ Prosoc= Teacher SDQ prosocial
scores.**

The same analyses were carried out for the key variables in the longitudinal study 2 and table 2.4 shows the normal distribution of the data for these measures.

Table 2.4 Skewness and Kurtosis statistics for Study 2

Measure	ToM	MSSB NC	MSSB Disc.	Story Org.	Peer Neg	Peer Pos	Vocab.	TSDQ Prosoc
Skewness	.516	-.475	-.872	-.875	-.124	-.117	-.490	-.845
Kurtosis	-.773	-.365	-.145	-.285	-.962	-.794	-.190	-.054

**Key: ToM=Theory of Mind, MSSB NC = MSSB Narrative Coherence
MSSB Disc. = MSSB Disciplinary dimension, Story Org= MSSB Story
organization, Peer neg= negative peer nominations, peer pos= positive peer
nominations, vocab=vocabulary scores, TSDQ Prosoc= Teacher SDQ prosocial
scores.**

2.9.1 Demographic data

Basic information was collected on each child regarding their date of birth, year group and gender. In addition, children in Studies 2 at baseline and follow up were asked if they had any siblings and whether these siblings were older or younger. This data was collected in order to test out the hypothesis in these studies, that there would be a significant association between presence of a sibling, particularly an older sibling, and performance on ToM tasks.

CHAPTER 3: STUDY 1 – CONNECTIONS AMONG TOM, ATTACHMENT-RELATED REPRESENTATIONS AND PEER POPULARITY

3.0 Chapter overview

There is growing interest in characterising the social cognitive bases of social competence in children. Research findings from the perspective of children's TOM and attachment theory have been significant in shaping our understanding of social cognitive processes and individual differences in social competence (Astington, 1994; Bretherton & Mulholland, 1999; Cassidy, Kirsch, Scolton, & Parke, 1996; Dunn, 1996; Shantz, 1983; Sroufe, Egeland, & Carlson, 1999). However, because research on these constructs derives from largely separate research perspectives, it is not clear what connections there are between these two models of social cognition, or if their influence on children's social competence is distinct or overlapping. In Chapter 1, the research literature on these two constructs was outlined. What follows now is an exploratory study into the possible association between these constructs and their relationship to popularity and unpopularity in the peer group, and behaviour.

This first study was devised with a set of exploratory research questions aimed at examining the associations between these two models of social cognition. This chapter sets out the results of this first study and draws conclusions which help to inform the design of the subsequent studies in this thesis.

3.1. Aims and hypotheses

The primary aim of this first study was to examine the links between ToM and attachment representations, and to examine the independent or overlapping contributions of each construct to peer acceptance in young children. In this first exploratory study, a number of research questions were addressed:

Q1. What is the association between ToM ability and attachment-related representations?

Q2. What is the association between ToM and Attachment-related representations and popularity and unpopularity amongst the peer group? And in relation to this second research question,

Q3 Are attachment-related representations and TOM associated with peer popularity and unpopularity independently of one another?

3.2. Method

3.2.1 Ethical Consent Procedures

Consent for the study was obtained from the Guy's Research Ethics Committee (99/09/05) and is given in Appendix A. .

3.2.2 Sample and procedures

Participants were 36 pre-school and primary aged children (56% girls and 44% boys); average age was 60 months (SD=10.1). Children were selected at random from each of three age groups (three separate classes in the same school). Children were recruited through a local primary school located in a large and ethnically diverse inner-city area. The school served a largely working-class population at moderate to high-risk for behavioural/emotional problems. Parents were given an information sheet and consent form to complete prior to testing. All children who returned the signed parent consent were invited to participate in

the interview-based assessments. Complete interview data were available on 36 of the 70 students who were potentially available in the three classes. None of the parents and children who were approached refused to participate; instead, the primary reason for low participation in the interview assessment was lack of response from parents. The difficulty in getting active consent from parents was consistent with the experience of school personnel. Children participated in one or two interview sessions in a quiet room at the school. All data were collected in the late winter and early spring terms. Interviews were audio taped and subsequently transcribed for coding.

3.2.3 Power calculation

When the sample size is 36, the multiple linear regression test of $R^2 = 0$ ($\alpha = 0.050$) for 3 normally distributed covariates will have 80% power to detect an R^2 of **0.2551**

3.2.4 Measures

The measures used in this study have been described in detail in Chapter 2. Children's attachment representations of parents were measured using the MacArthur Story Stem battery (MSSB; Bretherton, Oppenheim, Buchsbaum, Emde and the MacArthur Narrative Group, 1990; see appendix C). The battery includes 10 stories, 8 of which were used in this study. The rationale for using these 8 stories has been outlined in Chapter 2, Methods. During a warm-up period, the examiner tells the child that they are going to play together and that the examiner would start some stories and then asks the child to finish them. To begin the task, the examiner introduced each of the dolls and named each doll after the relevant family member in the child's family. After the appropriate props and dolls had been set up, the examiner (who had memorised the script) told the child the story beginning and the child is invited to "Show and tell me what happens next". Non-directive prompts are permitted to facilitate the child's story telling. Where appropriate, the examiner asked, 'is that the end of the

story?’ or ‘does anything else happen?’. The examiner maintained an animated approach to maintain the child’s engagement. The stories were audiotaped for later coding. Videoing facilities were not available, although it is recommended for more sophisticated coding (Emde, Wolf & Oppenheim, 2003).

The various coding schemes have been discussed in detail in Chapter 2 and coding for the MSSB along with examples of transcripts can be found in Appendix C and Appendix D.

Three independent raters coded the transcripts of children’s responses to the stories. Inter-rater reliability was calculated for each of the dimensions (Cohen’s kappa) and was acceptable, ranging from $K = .68$ to $K = .98$ across the theme and narrative scales, with mean of .84. This is consistent with the narratives double coded by raters trained by Mantz-Simmons (Steele et al., 2003). The four narrative codes (key issue, narrative coherence, bizarre/atypical and story resolution) were moderate to highly correlated (r ’s range from .39 to .69) and were therefore averaged to form a Story Coherence composite (internal consistency [α] was .83). In subsequent studies’ analyses these dimensions have been analysed both as a composite and as individual dimensions, and discussion is given over to the pros and cons of collapsing these dimensions into one.

ToM was assessed using the two standard false belief and two standard emotion false belief tasks described in the Method section in Chapter 2.

Children’s scores on the 2 false belief and 2 emotional false belief tasks were summed to form a composite ToM measure. The use of the composite score is supported by a substantial overlap between the false belief and emotional false belief scores ($r = .62$, $N = 36$, $p < .01$) and by the fact that the false belief and emotional false belief scores had essentially identical relations with attachment and peer nomination variables. All subsequent analyses are based on the ToM composite scale.

Peer acceptance and rejection. Children's acceptance and rejection by peers was based on the peer nomination method (Asher, Singleton, Tinsley, & Hymel, 1979; Coie, Dodge, & Coppotelli, 1982). Peer popularity methodology is effective from preschool-age children. All children in each of the three classes were asked to nominate three "favourite" and three "least favourite" children in their class. To aid the younger children, class-group photographs were used. The number of favourite and least favourite nominations for each child were standardised within class to allow comparisons across classes.

Vocabulary. Children completed the vocabulary sub-scale of the Wechsler Pre-School and Primary Scale of Intelligence (WPPSI – see Appendix K). The procedure involved a set of visually and verbally presented stimuli to which the child is required to give verbal responses. Scaled scores were used in analyses.

3.3 Results

3.3.1 Basic data N=36

Table 3.1 Means and SDs for attachment-related narratives

	Mean	SD	Min.	Max.
Story Organisation	2.88	.50	1.68	3.77
Narrative Coherence	3.87	.68	1.14	4.00
Negative Representations	2.30	1.83	0	7.00
Disciplinary Representations	6.17	3.89	0	16.0
Positive Representations	2.19	1.89	0	8.00

Table 3.2 Means and SDs for ToM tasks

	Mean	SD	Min.	Max.
ToM Tasks	1.50	1.46	0	4.00

Table 3.3 Means and SDs for peer popularity

	Mean	SD	Min.	Max.
Peer Neg	14.64	13.13	1.00	47.0
Peer Pos	17.03	13.20	1.00	45.0

Table 3.4 Means and SDs for test of verbal ability

	Mean	SD	Min.	Max.
Verbal Ability	20.0	7.59	5.00	39.0

3.3.2 Preliminary and bivariate analyses

Of the measures used in this study only one was associated with child gender. Girls scored significantly higher than boys on the ToM composite tasks ($t(34) = 2.42$, $N=36$, $p < .05$; means (SD) were 2.05 (1.4) and .94 (1.3), for girls and boys, respectively). Because child gender did not relate to the peer nomination outcome variables and because the correlations among the variables were essentially identical for girls and boys (i.e., child gender did not mediate hypothesised connections among variables), gender was not considered further in this study.

The associations among child age, vocabulary ability, composite ToM, attachment, and peer nomination variables are displayed in Table 3.5. As expected, both age and verbal ability were significantly associated with ToM ability. Of the attachment measures, Story Organisation¹ but not the content themes was significantly associated with verbal ability.

The results are now examined in relation to the research questions for this exploratory study.

Q1. What is the association between ToM ability and attachment-related representations?

An association between ToM and attachment was partly supported. Whereas ToM was not associated with any of the affective content themes (Positive, Negative, Disciplinary), it was strongly associated with Story Organisation ($r=.53$, $N=36$, $p<.01$). These results are shown in Table 3.5. Follow-up partial correlation analyses indicated that the association between ToM and Story Organisation was minimally influenced by verbal ability (partial correlation, $r = .46$, $N=36$, $p<.01$).

Q2. What is the association between ToM and attachment-related representations and popularity and unpopularity amongst the peer group?

Table 3.5 indicates that peer acceptance and rejection were significantly associated with ToM and attachment variables. Of the attachment variables, both Positive themes of the representation ($r=.37$, $N=36$, $p<.01$) and Story Organisation were significantly associated with acceptance ($r = .53$, $N=36$, $p<.01$) and rejection ($r = -.33$, $N=36$, $p<.01$). ToM was significantly associated with Peer Acceptance ($r = .41$, $N=36$, $p<.01$) but not Peer Rejection.

¹ Story Organisation is used in this thesis to refer to the composite score after the quality dimensions of Story Resolution, Narrative Coherence, Bizarre/Atypical and Key Issue are combined.

Table 3.5 Correlations between Variables

p

Age	Vocabulary	Composite		Positive Representation.	Negative Representation.	Discipl. Represent.	Story Org.	Peer Accept	Peer Reject
		ToM							
Age	---	.01	.47**	-.15	.21	-.07	.30+	.08	.02
Vocabulary	---		.31+	.20	.10	.03	.48**	.42*	-.21
ToM		---		.01	.16	.04	.53**	.41*	-.19
Positive Representation				---	-.39*	-.29+	.37*	.31+	-.33*
Negative Representation					---	.35*	-.08	-.23	.17
Discipline Representation						---	-.10	-.06	.20
Story Organisation							---	.53**	-.33*
Peer Acceptance								---	.54**
Peer Rejection									---

Note: ToM=ToM; Pos. Represent. = positive representation; Neg. Represent. = negative representation; Discipl. Represent. = disciplinary representation; Story Coh. = story coherence. n=36. + p<.10, * p<.01, **p<.001.

Partial correlation analyses indicated that Story Organisation was strongly and directly associated with peer acceptance but that the link between ToM and peer acceptance was indirect. For example, the correlation between Story Organisation and peer acceptance controlling for ToM was still moderate and statistically significant ($r = .41$, $N=36$, $p<0.05$), and only slightly reduced from the bivariate correlation. In contrast, the correlation between ToM and peer acceptance controlling for Story Organisation was substantially reduced from bivariate correlation and no longer statistically significant ($r = .17$, $N=36$, $p<0.05$)

Q3. Are attachment-related representations and TOM associated with peer popularity and unpopularity independently of one another?

In order to address this research question, multiple regression analyses were carried out. Prior to conducting the multiple regression analyses, it was first determined if both attachment variables (Story Organisation and Positive Representation, ($r=.37$, $N=36$, $p<.05$) were associated with peer acceptance. Partial correlations were run to examine if both attachment measures made independent contributions to peer outcomes or if they accounted for overlapping variance. Story organisation was significantly correlated with Peer Acceptance, controlling for the effects of Positive representation (partial correlation, $r=.47$, $N=36$, $p<.01$); however, the correlation between Positive representation and Peer Acceptance was not significant after controlling for the effects of Story organisation. Story organisation, but not Positive representation was therefore retained in subsequent analyses predicting Peer Acceptance.

A different pattern was observed for Peer Rejection. Although both Story organisation and Positive Representation were significantly associated with Peer Rejection in bivariate analyses, neither attachment variable was significantly correlated with Peer Rejection with the other variable statistically controlled. The correlation between Peer Rejection and Story organisation, controlling for Positive representation was $r=-.24$, $N=33$, $p<.01$; the partial correlation between Peer Rejection and Positive representation, controlling for Story organisation was also $r=-.24$, $N=33$, $p<.01$. The absolute change from the bivariate to the partial correlation was not substantial (from $-.33$ to $-.24$ in both cases), but sufficient to reduce the effect to non-significance.

Regression analyses were then conducted in order to examine how verbal ability may **influence** the connections among social cognitive variables and peer acceptance. The regression models were run in two ways. First, vocabulary standard score and ToM were entered on the first step as “control” variables; the measure of attachment story coherence was entered on step 2. This model examines whether, after controlling for the effects of verbal ability and theory of mind, the index of attachment predicted individual differences in peer acceptance (top half of Table 3.6). The change in estimates of variables in step 1 from Model 1 to Model 2 highlight the degree to which variables entered at step 1 are **influenced** by the variable included in step 2. The bottom half of Table 3.6 shows the regression with the order of ToM and attachment reversed. This analysis tests the hypothesis that ToM predicts peer success after controlling for the effects of verbal ability and attachment.

Results reported in Table 3.6 indicate that, consistent with above partial correlations, Peer Acceptance is somewhat more strongly associated with Story organisation than with ToM, and that ToM does not contribute to peer acceptance independent of Story organisation. In Model 1, Table 3.6 (top half), verbal ability and ToM accounted for a significant 26% of the variance. There is a further suggestion that the effects of verbal ability and ToM are at least partly independent because both coefficients are significant (the latter at $p=.06$). Adding Story organisation to the model predicted an additional 12% of the variation in Peer Acceptance (top half of Table 3.6, Model 1); the independent effect of Story organisation was marginally significant ($p=.065$).

The bottom half of Table 3.6 indicates that the effects of Story organisation and verbal ability together accounted for 32% of the variance in Peer Acceptance; adding ToM to the equation resulted in no appreciable change in variance explained (an increase of 2%) but a slight reduction in the effect of Story organisation.

Individual differences in ToM were not significantly associated with Peer Rejection (see Table 3.5), so the regression analyses were not carried out. The correlations, reported above, indicate that both Story organisation and Positive representation are significantly associated with Peer Rejection, but that they do not predict independently from one another and instead account for overlapping variance. The regression table is reported on the next page.

Table 3.6 Regression Analyses Predicting Peer Acceptance from ToM and Attachment.

Step 1

Model 1			Model 2	
	B (SE B)	t	B (SE B)	t
Step 1.				
Vocabulary	.10 (.05)	2.07*	.06 (.05)	1.21
ToM	.20 (.10)	1.94	.10 (.11)	.92

Statistics for Step 1: $F(2, 33) = 5.80$, $p < .01$, $R^2 = .26$

Step 2.

Story organisation .69 (.36) 1.91

Statistics for Step 2: $F(3, 32) = 5.40$, $p < .01$, $R^2 = .34$

B = mean change in peer acceptance

Model 1			Model 2	
	B (SE B)	t	B (SE B)	t
Step 1.				
Vocabulary	.06 (.05)	1.28	.06 (.05)	1.21
Story organisation	.84 (.32)	2.64*	.69 (.36)	1.91

Statistics for Step 1: $F(2, 33) = 7.72$, $p < .01$, $R^2 = .32$

Step 2.

ToM .10 (.11) .92

Statistics for Step 2: $F(3, 32) = 5.10$, $p < .01$, $R^2 = .34$

B = mean change in peer acceptance

* $p < .05$, ** $p < .01$.

Follow-up analyses were conducted to examine if the patterns of associations varied according to age. First the association between ToM and attachment was examined varied across age by regressing ToM on Story organisation, age, and the interaction between Story organisation and age. The interaction was not significant, nor was the interaction significant when the Story organisation and ToM variables were reversed. This was followed by an examination to see if age moderated the connections among Peer Acceptance, ToM, and Story organisation by re-running the regression analyses reported in Table 3.6, and including a ToM by age interaction or Story organisation by age interaction on a final step. In no case was there a significant increase in variance in Peer Competence explained by the interaction. Thus, the connections among the variables did not vary according to the child's age.

3.4 Discussion

The aims of the present study were to examine the relationship between two models of children's social cognitive processes, one based on ToM and a second based on attachment theory and, in addition, to examine their independent and combined influence on individual differences in peer acceptance and rejection. The central findings were that there was a significant overlap between ToM and attachment theory models of social cognition (as measured by the attachment-related representations) that was not explained by verbal ability. However, the overlap was found for *how* children talked about attachment-relevant material in a story (i.e., the story organisation scores); there was no link between individual differences in ToM and frequency of positive, negative, or disciplinary themes in children's attachment stories. Second, the influences of ToM and attachment on peer acceptance were partly overlapping, although there was some suggestion that the effects of the former appeared to be **influenced** by the latter. The positive findings in this study are now discussed in more detail.

3.4.1 Association between ToM ability and attachment-related representations.

The findings in this study lend support to the notion that ToM and attachment representation are related constructs. This is the suggestion made by prior studies of young children that used somewhat different methods from those used in this report (Meins et al., 2002; Fonagy et al., 1996; Fonagy et al., 1997; Meins et al., 1998). There has been an accumulation of evidence since beginning this thesis that an association between attachment and ToM exists, but questions remain about the meaning of association. The data do not allow a test of alternative mechanisms for this association, although verbal ability as an **influencing** factor can be ruled out in this particular study. It may be that the family and social relationship experiences that promote more secure attachment and more coherent models of attachment relationships also promote a general ability and willingness to understand others' minds. These potentially contributory factors are untested in this study. It is possible that the task of being coherent and organised in describing attachment-related events to an unfamiliar experimenter coincides with ToM task of being able to consider the thoughts and feelings of another in a story vignette. In other words, children who score relatively highly on ToM may also be more likely to complete a story in a way that makes sense to an unknown experimenter, for example, by articulating sufficient details and context for actions in the story.

Quite aside from the discrepancies and differential prediction underscored by these findings, it is important to highlight some of the conceptual distinctions between the two constructs. For example, whereas ToM implies a general trait-like capacity to understand others' mind, attachment theory makes predictions about the quality and structure of children's social cognitions in relation to the self and attachment relationships. To date, the implications of these distinctions for understanding individual differences in social cognitive processes and the

relationship-specific or contextual nature social cognitive processes have received little attention (Humphress et al., 2002; O'Connor & Hirsch, 1999). Further research is also needed to consider multiple and likely overlapping models of children's social cognition. Research that contrasts alternative models of social cognition within a multi-trait and multi-method assessment framework may identify important sources of overlap and distinctiveness that may then lead to conceptual clarity and clinical progress.

3.4.2 Associations between ToM and attachment-related representations and popularity and unpopularity amongst the peer group

Support was found for the associations between two models of children's social cognition and peer acceptance and rejection. Extending previous research that examines the social consequences of individual differences in social understanding and understanding of mind (Dunn, 1996), individual differences were found in ToM which were significantly associated with peer acceptance; the connection with peer rejection was not significant. Thus, children who showed a more developed ability to understand others' minds and adopt the affective and cognitive perspectives of others were seen by their peers as more prosocial, friendly, engaging and socially skilled. As a result, they were nominated as being popular and "most liked".

Similarly, the hypothesised link between social cognitive processes derived from attachment theory also predicted peer social status; the effect was significant for both acceptance and rejection. This association implies a somewhat different social cognitive process. On one hand, children's positive representations of attachment figures may lead children to adopt more positive views of the self, others, and relationships. They may therefore approach others in a more positive manner and come to be viewed by others as positive, friendly, and engaging. This finding supports and extends research on children's attachment narratives,

which typically considered positive and negative themes in relation to prior behavioural assessments of attachment, current levels of behavioural/emotional problems, and clinical status (Bretherton, Ridgeway, & Cassidy, 1990; Buchsbaum, Toth, Clyman, Cichetti, & Emde, 1992; Oppenheim et al., 1997).

3.4.3 Narrative coherence and organisation of the story stems

The data on the attachment-related representations suggested an additional or alternative social cognitive explanation for children's social status. Children who completed the attachment story stems in an organised and coherent manner, incorporated the story premise in their response and did not introduce irrelevant or bizarre material (i.e., had high story organisation scores) were also likely to be rated popular and were not likely to be rejected by peers. In fact, the associations between the coherence of children's attachment narratives and peer social status variables were slightly stronger than that found for the Positive, Negative and Disciplinary themes. Furthermore, whereas the story coherence predicted peer acceptance independently of affective themes, the reverse was not the case. These findings therefore extend the limited previous research on young children's narrative coherence. Although narrative quality is assessed in studies of children's attachment narratives using the MacArthur battery (von Klitzing, Kelsay, Emde, Robinson, & Schmitz, 2000; Steele et al., 2003) and alternative attachment assessments (Green et al., 2000), it has not been widely used. These data suggest that the coherence construct may be a developmentally important construct even in young children.

Two further features of the narrative coherence findings are noteworthy. First, the prediction of peer acceptance from story coherence was independent of verbal ability. That is, although it may be tempting to attribute children's story organisation scores in the story stems to cognitive sophistication, this explanation cannot account for the findings obtained as verbal ability was

controlled for. Second, whereas coherence of the child's attachment narrative was strongly associated with ToM (controlling for verbal intelligence), the content (positive, negative, or discipline) of children's responses was not.

This topic is returned to later in the discussion, but suggests in this context that the findings provide both construct and discriminate validity of the story organisation measure, although the sample size is relatively small. Concerning the methodology involved, the association between independent raters' assessment of children's narrative coherence when completing attachment story stems and peers' nominations of most and least liked classmates is not likely to be an artefact of how the data were collected; that is, this finding is not easily explained by rater bias or some other methodological factor. Further research is needed before stronger claims can be made about the meaning and attachment relevance of young children's coherence in narrative assessments. In particular, it is not possible to know from the data if problems in narrative coherence are specifically observed in the context of talking about attachment, or if the problems index a general social cognitive difficulty that was not captured by verbal ability or ToM. Furthermore, it is not suggested that the meaning of narrative coherence is comparable in young children and adults (e.g., as it is conceptualised in the Adult Attachment Interview, Main, 1991), although some research suggests an overlap between childhood narrative measures such as the MSSB and the AAI (Steele et al., 2003). Nevertheless, these data do suggest that the coherence and quality of children's narratives may have implications for social adjustment and this is worthy of further investigation. The findings also point to an unresolved question about narrative coherence, namely, at what age is children's narrative coherence associated with attachment quality, and social competence more generally? The tendency in previous research published was to examine affective themes (but not narrative coherence) in children's attachment representations and narrative coherence (but not affective themes) in adult assessments. Other studies, whilst including coding of the narrative

coherence, have tended to focus on the themes of the narratives, such as aggression (von Klitzig et al, 2000; Schechter et al., 2007). The implication is that different social cognitive processes are associated with attachment across development, but studies have yet to directly test this assumption.

3.4.4 Summary of positive findings

The main feature of this first study is that it set out to contrast plausible social cognitive explanations for popularity in the peer group. The third research question in this study asked if attachment-related representations, and ToM are associated with peer popularity and unpopularity independently of one another. Only one subsequent study to date has examined a similar question using the same measures of peer popularity and a similar measure of attachment-related narratives (Futh et al., 2008). In terms of this research question, the findings show that both ToM and attachment are not independent predictors of peer acceptance. That is, not only do these constructs overlap ($r = .53$, $N=36$, $p < .01$), but so do their effects on peer relations. Although there is evidence of this overlap, the results point to an alternative explanation that the effects of ToM on peer acceptance are **influenced** by attachment. Three findings stand out in this regard.

1. Whereas both attachment variables (story coherence and positive representation) were significantly negatively associated with peer rejection, ToM was not. Thus, the effect of attachment social cognitive variables on peer rejection could not be explained by ToM, nor was it the case that their effects overlapped to any considerable degree.
2. The partial correlations indicated that the association between children's coherence in completing the story stem and peer acceptance was relatively unaffected when ToM was statistically controlled. In contrast, the correlation between ToM and peer acceptance dropped to non-

significance when children's attachment coherence was statistically controlled.

3. The same conclusion was indicated by the regression analyses, although the message was somewhat weaker. In the regression analyses, the key observation was that story organisation predicted additional variance in peer acceptance after verbal ability and ToM were statistically controlled (albeit at $p < .07$). The inverse (Model 2, Table 3.5, bottom half) was clearly not the case, nor was the effect of ToM marginal. Given the small sample size and low power, the results are not unambiguous, but do suggest **a stronger** role of attachment coherence. The final results also depend, in part, on the analytic approach adopted. For example, if the regression analysis predicting peer acceptance from ToM, story organisation, and verbal ability were based on a stepwise deletion procedure, only coherence would be selected for the final model ($\beta = .53$, $F(1,34) = 13.54$, $p < .001$, $R^2 = .29$). A final consideration is that the implications of this mediation hypothesis depend in large measure on the meaning of story organisation, and in particular whether it provides an index of attachment security. There is some evidence that the more organised narratives in young children are related to secure attachment. This important issue is explored more fully in the final discussion in Chapter 6.

3.4.5 Limitations

Several limitations should be noted. The first of these is the small sample size, which meant that only comparatively large effects would be reliably detected. This was particularly apparent given that some of the effects are significant at trend level using 2-tailed tests. The limitations of the small sample size, such as the limited power to detect statistically significant effects, may be partly addressed by considering both statistical significance and effect size of the

results. Second, the low rate of complete data, which is partly explained by parental non-response to consent to collect interview data suggests that there may be selective attrition. Although it was not possible to rule out possible effects of selective attrition, it is worth noting that if interviews were not completed on the behaviourally challenging children (leading to reduced variability), then one would expect attenuated associations. In this regard, it is noteworthy that the effects obtained are comparable to previous research in this area. A third limitation concerns the coding of the story stem responses. As noted, alternative scoring schemes have been developed and, more generally, there is need for further research to demonstrate that the codes specifically access children's attachment representations. These findings provide further convergent and **discriminant** validity for the scales, but further reliability and validity research is needed. A further limitation is that the study was cross-sectional. It is therefore not possible to demonstrate directly that peer outcomes are caused by individual differences in the social cognitive variables assessed. In addition, longitudinal data are needed to test further the mediational model suggested by results.

3.4.6 Summary conclusions and directions forward

In this first study, an investigation was carried out into the possible overlap and distinctions between two alternative models of children's social cognitive processes that are thought to underlie social competence. Results indicated that there was moderate overlap between indices of ToM and the quality of the child's attachment-related representations. Correlation and regression analyses indicated that, although both ToM and attachment indices were significantly associated with peer nominations of acceptance, the effects of the former appeared to be **influenced** by the latter.

One of the primary research questions was to look at the association between children's attachment-related narratives and their perspective taking skills (as measured by ToM tasks) and to examine how this was associated with popularity amongst the peer group.

There are two key findings in this first exploratory study which are worthy of further investigation in a larger study using a longitudinal design. The first is the supported association between the quality and coherence of attachment-related representations and ToM. The results indicated that children with more organised, coherent attachment-related representations were more likely to succeed on ToM tasks. The second finding worthy of further investigation is the significant association found in this exploratory study between organised/coherent attachment-related representations and popularity amongst the peer group. As the analysis took into account ToM skills and verbal ability, the results indicate the need to carry out further work investigating the overlap and differentiation of these alternative models of social cognition. The next study, described in Chapter 4, was designed to address these questions further.

CHAPTER 4 - STUDY 2: LONGITUDINAL STUDY OF THE RELATIONSHIP BETWEEN TOM, ATTACHMENT-RELATED REPRESENTATIONS AND PEER POPULARITY

4.0 Chapter overview

Encouraged by the preliminary findings in Study 1 regarding the relationship between the constructs of social cognition under investigation, a follow up study was devised, involving a larger cohort of children and with a longitudinal design. The study that followed aimed to pursue the interesting finding in this first study that pointed to the importance of the narrative style of children's completion of story stems, specifically the coherence, i.e., the way in which children talked about their key attachment relationships, rather than the content features of the attachment-related representations.

This interesting link was explored using the same measures, but with an analysis that focused on the specific dimensions of the attachment measure that pertain to the *quality* in which children described their attachment figures. These quality dimensions of the MSSB are; 'story resolution', 'narrative coherence', 'key issue' and 'bizarre/atypical'. In addition to repeating the measures used in Study 1, two additional measures were added to include an independent rating of both the child's behaviour with parent and teacher, and the child's behaviour in the classroom. These were included in order to address the questions set out in Chapter 1 regarding the nature of the link between children's attachment histories and attachment-related representations, and their subsequent behaviour and social competence, both within the family context and general social world with peers, teachers etc. As the measures in study 1 are entirely from the child's perspective, the inclusion of these measures; the Strengths and Difficulties Questionnaire (Goodman, 1997), and the Pianta Student Teacher Relationship Scale (Pianta, 2001), were specifically added to get a measure of the child's

functioning from an independent perspective. The SDQ is a behavioural screening questionnaire that reliably and accurately predicts the presence of a psychiatric disorder and is used in both research and clinical contexts. It looks at both emotional and behavioural difficulties and is therefore of interest in this thesis because it can be used to test out possible associations between constructs of social cognition and children's functioning in both of these domains. There is some good evidence to suggest that mothers (who usually complete the parent SDQs) sometimes show bias in their reporting of their child's behaviour (Stone, Otten, Rutger, Engels, Vermulst, & Janssens, 2010). The Pianta Student Teacher Relationship Scale (Pianta, 2001) is a teacher-reported measure of closeness, dependency, and conflict between child and teacher or caregiver. A discussion about the relationship between early parent-child attachment and subsequent behaviour/psychopathology has been explored in Chapter 1 and will not be repeated here, as has the relationship with children's general social competence and ToM. The aim of adding these two measures was to re-examine the relationship between children's attachment-related narratives and both their behaviour and social competence. Both of these measures are described in detail in Chapter 2.

Dunn (1995) found some evidence for a lack of stability in relationships between ToM and a measure of social competence; perception of peer experiences. She found that individual differences in performance on tests of emotional perspective taking and false-belief explanation were unrelated. At follow-up, early understanding of emotions was related to positive perception of peer experiences, whereas early false-belief understanding was related to negative initial perceptions of school, greater sensitivity to teacher criticism, and harsher self-judgements of performance. It would appear that there are different sequelae for children's developing understanding of emotion and of belief. Therefore, in this study, the two measures will be examined separately as well as looking at overall (aggregate) ToM performance over time.

4.1 Ethical Consent Procedures

Consent for the study was obtained from the Guy's Research Ethics Committee (99/09/05) and is given in Appendix A. As modifications were made to the initial study, renewed consent was obtained. Letters of approval of all amendments to the study are also given in Appendix A.

4.2 Participants

17. Participants were drawn from the same primary school used in Study 1.

The initial recruitment involved 80 children (36 girls, 44 boys) of whom a proportion had previously been involved in previous studies collected for this thesis. The sample had a mean age of 68 months (SD=12; range 46-86 months) and spanned four classes: nursery (n=15, aged range 46-54 months), reception (n=16, age range 58-62 months), year 1 (n=19, age range 63-74 months) and year 2 (n=30, age range 75-86 months). There was some racial, cultural and religious diversity among the children.

The importance of the ecological conditions that influence parental care and their effects on infant attachment have been revealed in cultural and cross-national studies using the Strange Situation (Thompson, 1998). In the present thesis, data were not collected on cultural backgrounds. Although no measures of socio-economic grouping or earnings were carried out, the school was in an area where the majority of families were in low socio-economic groups and this was reflected in the population of the school.

4.2.2 Inclusion and Exclusion criteria

The entire age range was of interest to this study since the focus for the follow-up one year later is on the development of ToM skills as well as changing or stable correlations between these and attachment representations or peer popularity. As with Study 1 children were excluded from the study where they did not have spoken English, however, it was not necessary for children to have English as their first language, and indeed many children in the study spoke another language in the family home. Some children, particularly in the younger age group, found it difficult to comply with the test instructions and were distracted at times but this was successfully dealt with by cutting down the time periods which they had to spend attending to tasks.

An issue for consideration throughout the series of studies in this thesis is that children's performance on the tasks may be consistent over time due to rehearsal and memory of their previous responses. There is evidence elsewhere that children can remember the stories (Bretherton and Oppenheim, 2003). Future studies should investigate test-retest stability in order to fully understand both change and consistency over time of children's attachment representations in these story stem techniques.

4.2.3. Participant attrition

Although the aim was to obtain a full battery of tests for all children, this was not possible due to the poor response rates from parents on the parent SDQ and

the numbers of children leaving the school. In total, complete data for the main measures in this study was collected from a sample of 69 children.

4.3. Aims and Hypotheses

This study attempts to further investigate the association between primary school aged children's attachment-related representations, mental state understanding skills, peer relations and verbal ability. In addition the unique or complementary contribution each variable makes to social cognition will be considered. It also sets out to examine the associations between children's attachment-related representations and their behaviour, as measured by both parent and teacher. The relationship between the children's understandings of mental states and their behaviour with parent and teacher is also investigated.

Schneider et al., (2001) suggested that the relationship seen between a child's attachment representations and their peer relations is stronger for older children than those slightly younger, and it will be interesting to see if this finding is replicated in this study.

Study 1 was exploratory and set out a number of research questions. Based on the results of this study, with questionnaire/quantitative measures, the following research questions, and *associated cross-sectional hypotheses* were addressed:

1. Are the correlations amongst measures of ToM, attachment-related representations and peer acceptance found in Study 1 supported in Study 2?

H1. Children indicating more positive and coherent attachment-related representations, are expected to succeed on ToM and emotional understanding

tasks compared with their peers, who demonstrated more negative, less organised attachment representations

2. To what extent is the level of social competence in 3-6 year-old children explained by attachment, ToM, or verbal IQ?

H2: Attachment-related representations will be more strongly related to peer popularity than ToM and verbal IQ.

3. To what extent are ToM and Attachment representations distinct or overlapping constructs?

*H3: It is hypothesised that the relationship between ToM and peer popularity will be **associated with** Attachment-related representations.*

4. Which component (e.g., narrative coherence, positive representation etc.) of attachment representations explains the most variance in popularity amongst the peer group and social competence as indexed by independent measures of behaviour?

H4. Children indicating more positive and well organised attachment-related representations are expected to display more prosocial behaviour and have fewer behavioural problems than their peers demonstrating more negative, less organised attachment representations.

4.4. Measures

Measures were identical to those used in Study 1 with the addition of a measure of behaviour (SDQ) and a measure of teachers' perceptions of their relationship to the child (PTRS). All measures are included in the Appendices and described in Chapter 2.

4.4.1 The Strengths and Difficulties Questionnaire

The parents/guardians of each child were sent the parental SDQ (Appendix G) with a covering letter at the beginning of data collection. Approximately two months later reminder letters, pre-paid return envelopes and repeat questionnaires were sent to the parents/guardians who had not initially responded. The teachers of each class were asked to complete both the teacher SDQ and the Student Teacher Relationship Scale for each child.

The SDQ questionnaire is a measure of psychiatric disorder in young children. It involves a series of 25 questions which rated on a 3 point scale 0 = "not true", 1 = "somewhat true" and 2 = "certainly true". The total score is made up of 4 of these 5 scales (emotional symptoms, conduct problems, hyperactivity/inattention and peer relationship problems) so the range is 0-40. The impact score gives an indication of the degree of overall distress and social impairment associated with the psychological attributes of the child or youth. It is calculated with the addition of items 28 through to 32. This is interpreted on a basis of the higher the score the higher the risk of clinically significant problems in the selected area. The SDQ has been shown to have high concurrent validity with other well established questionnaires measuring psychiatric disorder (e.g., Elandor & Rutter, 1996; Child Behaviour Checklist) that have also been shown to have high reliability and validity. Reliability for the SDQ has been demonstrated through internal consistency (mean Cronbach's alpha: 0.73), cross-informant correlation

(mean: 0.34) and retest stability after 4-6 months (mean: 0.62) (Goodman, 2001). In a study by Goodman, Ford, Simmons, Gatward and Meltzer (2000) the SDQ was found to have 94.6% specificity when identifying psychiatric diagnosis when compared with independent psychiatric diagnosis. The questionnaire has been shown to be a reliable and valid measure for screening school populations (e.g., Goodman et al, 2000) and has been further validated cross culturally in numerous countries (e.g., Garcia et al, 2000). It is used widely in clinical settings in both assessments and to look at changes in behaviour pre- and post-treatment.

4.4.2 Student Teacher Relationship Scale (STR)

The STR (Pianta, 1994; Pianta & Nimetz, 1991; Pianta & Steinberg, 1992) consists of 30 questions rated on a five-point scale (see Appendix H). From this scale Pianta developed three sub-scales measuring conflict/anger, closeness and dependency. These subscales have been shown to be associated with independent measures of classroom and home behaviour. For example, relationships characterized by security were related to child affection toward mothers, and competence behaviours in the home and in kindergarten. Dependent relationships between teachers and children were related to child negativity with mothers, acting-out behaviours in the home, and behaviour problems in school (Pianta, 1994; Pianta & Nimetz, 1991; Pianta & Steinberg, 1992). This scale is the most widely used in the research examining teacher relationships with young children, especially concerning attachment type studies (see Howes, 2000 for a review).

4.4.3 Consent

The issue of consent was the same for this study as the previous one, and is described in 2.1.3 in Chapter 3.

4.4.4 Inter-Rater Reliability

Two independent raters coded transcripts of children's responses to the stories. Inter-rater reliability for each of the dimensions was acceptable, ranging from .34 to .86 across the theme and narrative scales. The four narrative codes were highly correlated (r 's range from .61 to .93) and were therefore averaged to form a Story Organisation composite (internal consistency [α] was .92). This Story organisation composite is used for the purposes of analysis in addressing some of the research questions in this thesis as it pertains to the coherent, resolved, relevant and resolved manner that the children tell their attachment-related narratives.

4.5 Results

Results from the first stage of this longitudinal study, are set out below and 4.9.6 sets out the results from the statistical analysis of the sample who participated at both baseline in study 2 and at one year follow-up.

4.5.1 Descriptive Statistics for Sample Population

Table 4.1: Age of Children by Class

	Nursery	Reception	Year 1	Year 2	Sample Total
N	15	16	19	30	80
Mean Age (months)	50.47	60.50	68.32	81.10	68.20
Std. Deviation	2.95	1.37	3.53	3.80	12.04
Min-Max	46.00-54.00	58.00-62.00	63.00-74.00	75.00-86.00	46.00-86.00

Table 4.2: Age and Number of Children in each Class by Gender

		Nursery	Reception	Year 1	Year 2	Sample Total
Boys	N	8	9	8	19	44
	Mean Age (months)	51.50	60.56	69.00	81.37	69.43
Girls	N	7	7	11	11	36
	Mean Age (months)	49.29	60.43	67.82	80.64	66.69
Sample Total	N	15	16	19	30	80
	Mean Age (months)	50.47	60.50	68.32	81.10	68.20

Table 4.1 shows the number (N) and gender ratio of the children participating.

The mean ages for each gender are also shown. Boy and girl participants were evenly distributed throughout the classes and a Kruskal Wallis test found the difference across the sample was not significant ($X^2 = 2.12$, $df=3$, $p=0.55$). A Mann-Whitney test demonstrated that across the sample, boys and girls did not differ significantly with respect to age ($U=702.00$, $n=80$, $p=0.39$).

Table 4.3 Distribution of data for the measures

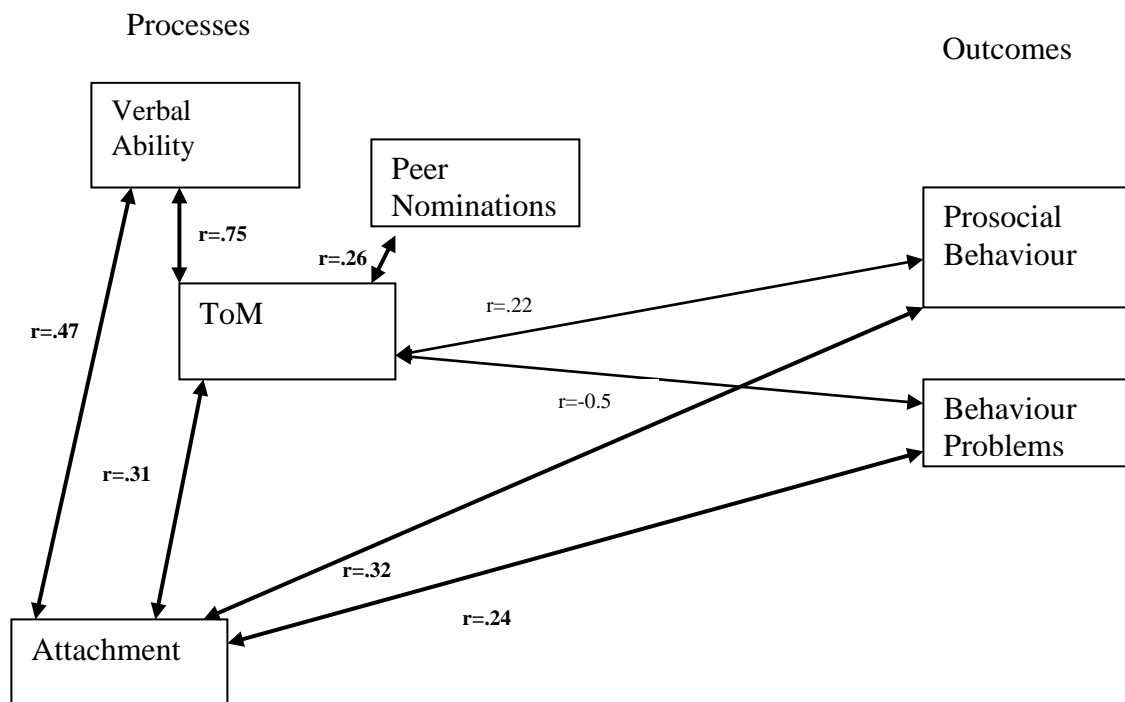
	Male				Female			
	Mean	SD	Min.	Max.	Mean	SD	Min.	Max.
Total score on Physical Cartoons	7	2	4	10	11	3	8	14
Total score on Theory of Mind Cartoons	5	2	2	7	6	2	4	9
Total score on Cartoons	12	4	6	16	17	5	12	21
Positive Presentations	1	1	0	4	1	1	0	3
Negative Presentations	1	2	0	7	0	1	0	2
Disciplinary Presentations	0	1	0	2	1	1	0	3
Key Issue	22	6	11	30	16	6	9	27
Story Resolution	22	6	11	31	17	8	8	28
Bizarre/Atypical	26	6	11	32	21	7	11	30
Narrative Coherence	26	7	10	32	19	8	9	29
Story Stem Organisation Score	96	24	43	123	72	26	41	104
Total Score on Measures of False Belief	1	1	0	2	1	1	0	2
Total Score on Measures of Emotional Understanding	2	2	0	5	2	2	0	6
Total Score for Theory of Mind Measures	3	3	0	7	3	3	0	8

Analysis revealed that the data for the story stem dimensions were not evenly distributed, so a Mann Whitney non-parametric test was performed to look at differences between narratives for boys and girls, results of which were not significant ($Z = -.3$, $p = .8$) for Key Issue for example. All other dimensions showed no significant differences between boys and girls.

4.5.2 Bivariate analyses

Statistical analysis of the data was carried out using SPSS. Performance on both the MSSB and ToM measures require a certain level of receptive and expressive language abilities, and as previously discussed there is a certain amount of uncertainty as to what extent both performance on these measures, and development in these areas, is influenced by the child's verbal ability. Therefore partial correlations were run controlling for language ability in order to determine its possible influence on any relationship. Associations between the variables at baseline are shown in Figure 4.1. The outcome variables prosocial behaviour and behaviour problems were used in addition to peer popularity in the subsequent regressions.

Figure 4.1 Baseline Comparisons:



H1. Children indicating more positive and coherent attachment representations, are expected to succeed on ToM and emotional understanding tasks compared with their peers, who demonstrated more negative, less organised attachment representations

In order to test this hypothesis, bi-variate correlations were performed on the data on the story stem dimensions and ToM scores.

Significant correlations were found for the Story organisation scores with measures of false belief ($r = 0.27^*$, $N=69$, $p < 0.05$), emotional understanding ($r = 0.30$, $N=80$, $p < 0.05$) and total ToM scores ($r = 0.31$, $N=69$, $p < 0.01$). **When partial correlations, controlling for the effect of language ability, were run these correlations remained significant with the exception of the association with emotional understanding which was rendered non-significant ($r = -0.07$, $N=69$, $p=0.541$).**

A linear regression was run to test out if there were any age-group differences in the hypothesised association between attachment representations and ToM competence. This was non-significant.

Language ability scores were found to be highly correlated with two of the story stem dimensions: story organisation ($r=0.47$, $N=70$, $p<0.001$), positive representations ($r=0.31$, $N=70$, $p=0.009$); and with total ToM score ($r=0.75$, $N=69$, $p<0.001$).

A one-way ANOVA was conducted to test if there were any significant differences between the age groups on narrative coherence, and this was found to be non-significant ($F=1.67$ (3,48), $p<.01$)

Table 4.4 Correlations (bivariate, 2-tailed) between Story Stem Dimensions and ToM Scores

	Total Score on Measures of False Belief	Total Score on Measures of Emotional Understanding	Total Score for Theory of Mind Measures
Positive Representations	0.16	0.21	0.21
Negative Representations	0.08	0.02	0.04
Disciplinary Representations	0.11	0.23	0.21
Story Organisation Score	0.27*	0.30*	0.31**

****Correlation is significant ($p < 0.01$)**

*** Correlation is significant ($p < 0.05$)**

‘Story organisation’ refers to the quality of the narrative (coherent, key issue, story resolution and bizarre/atypical material absent/present) rather than the content (positive, negative, disciplinary themes). The scores on this dimension were significantly correlated with all ToM measures. When partial correlations, controlling for the effect of language ability, were run the correlation was no longer found significant.

If, instead of taking the composite measure of Story organisation, one looks at the relationship between the individual ‘story quality’ dimensions and the same variables (emotion understanding, false belief and composite theory of mind scores), the following results are found:

Three of the four story quality dimensions are found to be significantly correlated with all of the first order theory of mind measures. Story resolution with false-belief ($r=.30$, $N=69$, $p<.05$); narrative coherence ($r=.25$, $N=69$, $p<.05$) and bizarre/atypical ($r=.28$, $N=69$, $p<.05$). Correlations were also found between these three dimensions and the first-order emotional understanding measures; story resolution ($r=.38$, $N=69$, $p<.05$); narrative coherence ($r=.24$, $N=69$, $p<.05$) and bizarre/atypical ($r=.25$, $N=69$, $p<.05$). Similarly, correlations between these three dimensions were found with the composite ToM measures; story resolution ($r=.39$, $N=69$, $p<.05$); narrative coherence ($r=.26$, $N=69$, $p<.05$) and bizarre/atypical ($r=.91$, $N=69$, $p<.05$). It is noteworthy that no significant correlations were found between these dimensions and the higher-order ToM cartoons which were used with only the older children. This raises a question of whether potentially different mechanisms are at work influencing children's developing mental-state understanding scores in the older years compared with a possible attachment influence in the younger years. Partial correlations, controlling for the effect of language ability and age, were also run for each of the four dimensions within the story organisation and ToM variables separately. However, with these taken into account, there remain no significant correlations.

Table 4.5 Correlations between MSSB story quality dimensions and ToM tasks

MSSB story quality dimension	Total Score on Measures of False Belief	Total Score on Measures of Emotional Understanding	Total Score for ToM Measures	Total ToM Cartoons Score
Key Issue	.15	.21	.21	.05
Story Resolution	.30*	.38*	.39*	.26
Narrative Coherence	.25*	.24*	.26*	.16
Bizarre/Atypical	.28*	.25*	.28*	.91

* $p < .05$

There are some interesting discrepancies in the results here which appear to raise more questions with regard to the nature of the association between the measures and constructs of attachment and ToM.

H2: Attachment representations will be more strongly related to peer popularity than ToM and verbal IQ.

This hypothesis was tested by performing bivariate correlations on the data to analyse the results in relation to these variables. Table 4.5 showed no significant, or approaching significant, correlations between peer popularity and measures of attachment-related representations ($p < 0.1$). Analysis was also run with the four variables within the story organisation dimension separately, and

for each gender and class individually, but no significant correlations were found.

The findings therefore do not support the hypothesis that attachment representations will be strongly related to peer popularity.

Table 4.6: Correlations (bi-variate, 2-tailed) between Story Stem Dimensions and Peer Popularity

	Positive - Negative - Disciplinary Representations			Story Organisation Score
Positive Peer Rank	-0.02	-0.14	0.12	-0.03
Negative Peer Rank	-0.06	0.04	0.10	-0.06

To test hypothesis 2 further, correlations were run on the data on ToM scores and ratings of peer popularity (see Table 4.7). A significant correlation was found between negative peer rankings and false belief understanding ($r=0.26$, $N=70$, $p=0.031$) which was still approaching significance after controlling for language ability and range ($r=0.23$, $N=70$, $p=0.055$).

Table 4.7: Correlations (bivariate, 2-tailed) between ToM Ability and Peer Popularity

	Total Score on Measures of False Belief	Total Score on Measures of Emotional Understanding	Total Score for ToM Measures
Sample Positive Peer Rank	-0.04	0.06	0.04
Sample Negative Peer Rank	0.26*	0.12	0.16

*Correlation is significant ($p < 0.05$)

*H3: It is hypothesised that the relationship between ToM and peer popularity will be **associated with** attachment-related representations.*

A regression analysis was not run to test out this hypothesis since no correlations were found between these variable once accounting for verbal ability.

H4. Children indicating more positive and well organised attachment-related representations are expected to display more prosocial behaviour and have fewer behavioural problems than their peers demonstrating more negative, less organised attachment representations.

To test this hypothesis, correlations were run to examine the association between the attachment-related representations variable and children's scores on both teacher and parent versions of the SDQ.

Table 4.8 Correlations (bivariate, 2-tailed) between Story Stem Dimensions and Teacher Ratings on the Strengths and Difficulties Questionnaire.

	Prosocial	Hyperactivity	Emotional Symptoms	Conduct Problems	Peer Problems	Total Difficulties Score
Positive Representations	0.32**	-0.08	0.34**	-0.11	0.04	0.06
Negative Representations	-0.11	0.20	-0.11	0.14	0.06	0.12
Disciplinary Representations	0.07	0.19	0.25*	0.09	0.24*	0.27*
Story Organisation	0.34**	-0.27*	0.27*	-0.19	-0.01	-0.09

**** Correlation is significant (p<0.01).**

*** Correlation is significant (p<0.05)**

Some interesting results emerge from this analysis with respect to the fourth research question. There is a significant correlation with the teacher SDQ-Total difficulties score and attachment-related disciplinary representations ($r = .27$, $N = 69$, $p < .05$). Disciplinary attachment-related representations are also significantly correlated with both the emotional symptoms ($r = .25$, $N = 69$, $p < .05$) and peer problems subscales ($r = .24$, $N = 69$, $p < .05$). Story organisation of the MSSB is significantly correlated with prosocial behaviour ($r = .32$, $N = 69$, $p < .01$). Positive representations were found to be significantly correlated with the prosocial ($r = .32$, $N = 69$, $p < .05$) and emotional symptoms ($r = .34$, $N = 69$, $p < .05$) subscales. A negative significant correlation was found between story organisation and the hyperactivity subscale ($r = -.27$, $N = 69$, $p < .05$) and the emotional symptoms subscale ($r = .27$, $N = 69$, $p < .05$).

To test the fourth hypothesis further, correlations were also run on the data for parent's ratings on the SDQ with children's attachment-related narrative responses. Table 4.9 sets out the results of these correlations. Fewer significant

correlations were found between the story stem dimensions and parental SDQ results. Story organisation did not correlate with any of the questionnaire dimensions. Significant correlations were found for positive representations with the prosocial scale ($r=.32$, $N=69$, $p<.05$) and a negative significant correlation with the conduct problems subscale ($r= -.13$, $N=69$, $p<.05$). There was also a correlation found for the disciplinary attachment-related representations with the hyperactive subscale ($r=.33$, $N=69$, $p<.05$). On further investigation using partial correlations, controlling for the effect of language ability, there remained a significant correlation between positive representations and the prosocial scale ($r=0.36$, $N=69$, $p=0.02$), however, the other correlations previously noted were no longer significant.

No significant correlations were found between any of the scales of the Pianta Student Teacher Relationship Scale and measures of ToM. However, a significant correlation was found between the conflict dimension of the STRS and negative attachment-related representations ($r=.32$ ($N=68$), $p<.01$). This correlation was rendered non-significant after controlling for verbal ability.

Table 4.9 Correlations (bivariate, 2-tailed) between Story Stem Dimensions and Parent Ratings on the Strengths and Difficulties Questionnaire.

	Prosocial	Hyperactivity	Emotional Symptoms	Conduct Problems	Peer Problems	Total Difficulties Score
Positive Representations	0.32*	-0.12	-0.07	-0.13*	-0.22	-0.26
Negative Representations	-0.22	-0.18	-0.18	-0.10	-0.02	-0.18
Disciplinary Representations	0.02	0.33*	-0.01	0.05	-0.02	0.14
Story Organisation	0.11	-0.23	-0.11	-0.19	-0.08	-0.23

**Correlation is significant ($p<0.01$)

* Correlation is significant ($p<0.05$)

4.6 Support for the hypotheses

The hypothesised relationship between ToM and attachment-related representations was not upheld once verbal ability was accounted for, specifically the relationship between the story organisation, including the narrative coherence, of the attachment-related representations and ToM. The hypothesised relationship between children's attachment-related representations and behaviour was upheld, with respect to the association between the teacher-rated SDQ-Total difficulties score and disciplinary representations, and also positive attachment-related representations and the parent SDQ prosocial scale. Verbal ability emerged as a significant variable in terms of its association with both the quality and content of children's narratives and with their ToM skills.

4.7 Discussion

The results from Study2 are now discussed in relation to the research questions and hypotheses.

H1. Children indicating more positive and coherent attachment-related representations, are expected to succeed on ToM and emotional understanding tasks compared with their peers, who demonstrated more negative, less organised attachment representations

The findings of this study show a trend in the direction of the hypothesis 1, as significant correlations were found between the 'story organisation' dimension of the attachment measure and all ToM measures. This indicates that it is not the affective themes of the narratives (positive, negative, disciplinary) that are associated with ToM development, but instead aspects of how the child tells a story and whether it is coherent and relevant or disorganised with bizarre/atypical content. This trend is consistent with the finding in Chapter 3

where the narrative coherence dimension of the MSSB and composite organisation score were strongly correlated with ToM skills (and also with peer popularity). However in contrast with the first study, where the central findings were that there was a significant overlap between ToM and attachment theory models of social cognition that was not explained by verbal ability, correlations were no longer significant after controlling for language ability at baseline in Study 2. Study 1 found a significant overlap in how children talked about attachment-relevant material in a story and ToM skills, whilst reporting no link between individual differences in ToM and frequency of positive, negative, or disciplinary themes in children's attachment stories. The first study also found that the influences of ToM and attachment on peer acceptance were partly overlapping, although there was some suggestion that the effects of the former appeared to be **affected by** the latter. The findings at baseline in Study 2 were not consistent with this initial finding, as when controlling for verbal ability, associations between the two constructs of ToM and attachment were rendered non significant.

4.7.1 Association between ToM and negative peer ratings

H2: Attachment representations will be more strongly related to peer popularity than ToM and verbal IQ.

Although unexpected in terms of the hypothesis, the association noted between ToM ability and negative peer rankings may back the findings of others (Sutton, 2003; Sutton et al, 1999; Happé & Frith, 1996) who suggest that a child may use their ToM skills for deception and manipulation of their peers. ToM may therefore be linked with antisocial behaviour and consequent peer unpopularity; although no data regarding bullying in the school was collected for this study. This issue is dealt with in some detail in the discussion of the findings in Chapter 6.

4.7.2 Association between attachment-related representations and behaviour problems

H4. Children indicating more positive and well organised attachment-related representations are expected to display more prosocial behaviour and have fewer behavioural problems than their peers demonstrating more negative, less organised attachment representations.

Findings from the teacher and parent questionnaires provide some support for the hypothesis that children who **have** more positive and well organised attachment representations will display more prosocial behaviour, and have fewer behavioural problems than their peers. Both teacher and parent questionnaires demonstrated significant correlations between positive representations and prosocial behaviour. Those from the parent and teacher questionnaires remained significant after controlling for language ability, suggesting that positive, well organised attachment representations are related to prosocial behaviour. This supports previous findings, (Pastor, 1981; Maccoby, 1984; Erikson et al., 1985; Cohn, 1990 and Belsky & Cassidy, 1994). However, an analysis of the sample in this study in two gender groups indicated that the relationship may only be significant for girls. This is contrary to the findings of Cohn (1990) who found attachment classification to be associated with peer social competence for boys but not for girls.

An interesting finding with respect to children's representations of their attachment relationships is the significant correlation between disciplinary attachment-related representations and teacher-rated problems with peers. This finding is unexpected as previous research points to a link between disciplinary representations and fewer externalising behaviour problems (Oppenheim et al.,

1997; von Klitzing et al., 2007). The finding raises questions about the meaning of disciplinary attachment related representations and the coding of this dimension. The meaning of this association depends crucially on how discipline is **operationalised**, as coercive/authoritarian or as firm/authoritative. If discipline in the child's head is more to do with prohibitions and the like, then a possible association with behaviour problems would make more theoretical sense. It is the *type* of disciplinary rather than *presence* of discipline as such which is important in interpreting this finding. To understand this finding further therefore, it is necessary to look at the transcripts to see if discipline was more often coded in where the content of the discipline was harsh/prohibitions vs. authoritative/firm expectations. **The use of video recording of the interviews with children would have made this easier to be confident, and would have added another dimension to the data analysis.** The analysis of this coding is reported on in the follow up data analysis and discussion (see **4.9.9.5**) and the meaning of this association is dealt with in more detail in the Discussion Chapter 6.

4.8 Limitations of the study

One possible explanation for the non-significant relationship between attachment-related representations and ToM may be found in the materials being used to measure attachment. It is worth considering that the two measures are in fact, at least in part, assessing the same thing, providing an alternative explanation for the perceived correlation. This issue is dealt with in some depth in the discussion in Chapter 6. Children with better ToM skills are able to produce a narrative that is more coherent because they are able to use their perspective taking skills to predict the behaviour of the characters, and consequent outcome of the stories, in a coherent and congruent way. Conversely, children with poor ToM skills will find it difficult to imagine themselves in the position of the character in the story stem, predicting how they will react in a given situation, and may consequently dismiss the key issue,

achieving a poor story organisation score as a result. In other words, the story stem measure of attachment may not be ideal when investigating a possible relationship between attachment representations and ToM skills.

However, controlling for age also rendered this correlation not significant, and the results may therefore reflect a more fundamental lack of relationship between the constructs being measured.

Similarly, the problem may lie in the measure of attachment, as attachment-related representations are being measured, not attachment behaviours. This highlights a key question raised by Hill, Fonagy, Safier & Sargent (2003), which is, how does attachment at the level of behaviour “become” attachment at the level of representation (Bretherton & Mullholland, 1999; Main, Kaplan and Cassidy, 1985)? Returning to Bowlby’s original notion which was that action becomes internalized at the level of representation, producing an internal working model of the self in relation to others, it is important to ask about the interplay between attachment as representation and attachment as behaviour. Crucially, are the attachment processes in young children being evoked when they are confronted with the prompts in the MSSB in this study? **It is also worthwhile considering the role of fantasy in children’s MSSB narratives. In one study of children’s violent fantasy, behaviour and friendship, hard-to-manage children were found to engage in a greater degree of violent fantasy in pretend play scenarios (Dunn & Hughes, 2001). Although detailed demographic data was not collected for this thesis, it is an issue worth considering that children from a low socioeconomical and therefore higher risk background, may be more likely to include more violent or conflict fantasy in their narratives. This has not been tested out in the thesis.**

It is therefore possible that other measures of attachment may be better at demonstrating a link between these two constructs, which may include a measure of attachment *behaviours*. This issue is also addressed in more depth in the discussion in Chapter 6.

It is worth noting that girls appeared to receive more positive, and fewer negative nominations than boys. Although the difference was not found to be significant in this sample, the trend supports findings of Dodge (1980) and Denham, McKinley, Couchoud & Holt (1990) and is thought to result from girls being more prosocial and less aggressive than boys.

4.9 Summary of baseline findings

This study reveals a correlation in the direction hypothesised between children's story organisation and ToM skills. However, after taking account of language ability this relationship is no longer significant. In addition, as hypothesised, children with positive and more organised attachment representations were reported to behave more prosocially than their peers with negative, less organised attachment representations. Children with disciplinary attachment-related representations had more problems with peers according to the teacher-rated SDQs. Teachers also rated children with positive attachment-related representations as more prosocial. These teacher-rated measures should be given some serious attention, since they are a reliable measure of the child's behaviour. A further finding of interest is the significant association between children who show well-developed skills of mental state understanding and negative nominations from their peers, indicating that these children are the 'least liked' amongst their peer group. The possible relationship of this finding to other research in the field of ToM and bullying (e.g., Sutton, 2003) will be explored in the discussion in Chapter 6.

In the next part of this chapter, the follow-on study is described, using the same cohort of children one year after the data were collected on them at baseline.

4.9.2 Follow-on study one year after baseline data

In the second stage of this longitudinal study, the data were examined at both time points to examine the developmental stability or change in relationships between these and other variables and the stability of individual differences. To date, developmental changes in children's mentalizing skills are not well understood.

The results of Study 1 in this thesis found a general link between children's representations of their mothers and children's social competence. Specifically, it was found that the story organisation of children's stories in the attachment story stems was linked to their mentalizing skills and to peer popularity. This finding was only partly upheld in Study 2 at baseline, where verbal ability was found to have a significant role in its association with both attachment and ToM variables. A question remains concerning whether these relationships are stable over time, or subject to change as other factors become more important in forming children's social competence and ToM skills? The importance of language for children's developing ToM which has been established in Study 2 was also considered at one-year follow-on.

Study 1 in this thesis found a relationship between ToM skills and children's positive peer rankings, and also in the organisation of their attachment-related representations. Study 2 found that ToM skills were well-developed in the group of children who received the most negative peer nominations. However, despite the ever-growing number of studies in the field of mental-state understanding there is little research that looks at either the stability of these

relationships, using a longitudinal design, or the stability of individual differences in children's mentalizing skills.

Based on the premise that understanding of cognitive states arises from an earlier understanding of emotional states (Bartsch and Wellman, 1995), it was hypothesised in the previous studies that there would be a relationship between children's attachment representations and their ToM skills. Inconsistent evidence was found in relation to this hypothesis across the first two studies (Study 1 and Study 2). The longitudinal design of Study 2 permits an analysis of the association between these constructs from time 1 to time 2, including an analysis of the stability of any associations that are found.

4.9.3 Aims and hypotheses of the follow-up study

At follow up one year on from baseline in Study 2, the same cohort of children were administered the same measures, with some additional age appropriate ToM tasks for the older children (as they had all moved up one class year in school). This study investigated the same hypothesised correlations between measures of ToM, attachment and peer popularity. The association between disciplinary representations and peer problems found in Study 2 was given further attention. Developmental changes in children's social cognitions were analysed and are discussed. The following hypotheses were tested:

H1. There will be a positive correlation between story organisation (quality dimension of attachment-related representations) and ToM at follow-up as found at baseline.

H2. ToM performance in Study 2 will predict performance on ToM tasks at time 2 one year later at follow-up

H3. There will be developmental change in both children's understanding of false belief and emotion with significant increases over time in the number of children succeeding on these tasks and in overall ToM performance.

H4. Attachment-related representations will predict performance on ToM tasks at both time points.

H5. Attachment representations in Study 2 will predict performance on ToM tasks one year later at follow up.

H6. Children indicating more positive and well organised attachment-related representations are expected to display more prosocial behaviour and have fewer behavioural problems than their peers demonstrating more negative, less organised attachment representations.

H7. There will be an association between ToM performance and peer nominations, both positive and negative.

H8. Children with siblings will perform significantly better on ToM tasks at both times.

H9. Peer popularity (positive peer nominations) at follow-on will be predicted by earlier attachment representations at baseline in Study 2.

4.9.4 Method

4.9.5 Participants

Participants consisted of the 56 pupils from the same primary school in south London who had taken part at time point 1 in Study 2. The total cohort of children recruited for the follow-on study was 92 as this included some younger children who had not previously been tested, but were now old enough to be eligible for the measures, and some additional older children who had not been available for testing in Study 2. Of the total sample, thirteen children took part at baseline in Study 2 but not at follow up, and 23 children participated in the follow up one year on, but were not eligible to take part at baseline in Study 2. Ages ranged from 38 months to 77 months with an average age of 62.3 months (Standard deviation 10.8). The cohort of 56 could be analysed to address the developmental issues as they had participated at both time points 1 and 2.

4.9.6 Power calculation

When the sample size is 56, the multiple linear regression of $R^2=0$ ($\alpha = 0.050$) for 3 normally distributed covariates will have 80% power to detect an R^2 of 0.1735.

4.9.7 Measures

The statistics incorporate results from all data from the measures included at baseline in Study 2 and at follow up one year later. As outlined in previous chapters, the older children completed different ToM measures compared with the younger group. These measures and their procedures have been described in previous chapters. The complete list of measures included in the analysis is as for baseline in Study 2.

4.9.8. Demographic information

The presence, total number and number of older siblings were recorded for each participant.

4.9.9 Procedure

Procedures have been previously described for collecting data, and no procedural changes were made between baseline and follow up. The area for testing the children remained consistent and the test materials remained the same, with the exception of the Happé stories for the older children. Several of the children remembered the tests and the examiner and commented on this before testing began. This meant that for the ToM tasks a number of children remembered the procedure, but as they had had no previous feedback on their response to the test the first time, they were not aware of their result for the test either previously or at the second time point.

4.9.9.1 Results

The results are divided into a summary of the descriptive data for the individual measures and analyses in relation to the hypotheses.

4.9.9.2 Descriptive Statistics for Sample Population

Table 4.9.1: Age of Children by Group

	Nursery (38-53 months)	Reception (54-65 months)	Year 1 66-77 months)	Sample Total
N	15	16	25	56
Mean Age (months)	48.7	59.0	72.4	62.2
Std. Deviation	5.1	3.5	3.7	10.8

Table 4.9.2: Age and Number of Children in each Class by Gender

		Nursery	Reception	Year 1	Sample Total
Male	N	7	7	17	31
	Mean Age (months)	48.1	59.3	72.4	63.9
Female	N	8	9	8	25
	Mean Age (months)	49.3	58.8	72.6	60.2
Sample Total	N	15	16	25	56
	Mean Age (months)	48.7	59.0	72.4	62.3

Table 4.9.2 shows the number (N) and gender ratio of the children participating. The mean ages for each gender are also shown.

Table 4.9.3 Distribution of scores for the measures at one year follow-up.

		Male				Female			
		Mean	SD	Min	Max	Mean	SD	Min	Max
Tested in years 1 & 2	Total score on Physical Cartoons	9	3	4	14	7	3	2	13
	Total score on Theory of Mind Cartoons	7	4	1	13	5	3	0	10
	Total score on Cartoons	16	7	5	25	12	6	3	23
	Positive Presentations	2	1	0	6	3	2	0	7
	Negative Presentations	1	1	0	4	1	1	0	2
	Disciplinary Presentations	1	1	0	5	1	1	0	4
	Key Issue	21	7	7	31	23	8	8	32
	Story Resolution	22	6	8	31	27	4	19	32
	Bizarre/Atypical	25	7	10	32	30	3	22	32
	Narrative Coherence	23	7	8	32	28	3	22	32
	Story Stem Organisation Score	91	25	35	122	108	14	71	126
	Total Score on Measures of False Belief	1	1	0	2	1	1	0	2
	Total Score on Measures of Emotional Understanding	4	3	0	6	4	2	0	6
	Total Score for Theory of Mind Measures	5	3	0	8	5	3	0	8
	Zscore(PEERPOS)	.12138	.93200	-1.70833	1.28757	-.27211	1.01938	-1.72077	1.53857
	Zscore(PEERNEG)	-.11183	.80454	-1.31462	1.29899	.05934	1.15125	-1.68104	1.54706
	Zscore: tom	.12828	.94506	-2.14440	1.67111	.00371	1.06392	-2.14440	1.67111
	Verbal IQ	101	14	69	124	101	14	77	122
	negative peer ranking	13.02	9.22	1.00	32.00	15.02	14.00	1.00	47.00
	positive peer ranking	16.48	11.06	1.00	45.00	11.33	10.87	1.00	38.00

4.9.9.3. Descriptive statistics for performance on ToM tasks

For the aggregate ToM scores, the group mean was 3.85 (SD=2.31) at time 1 and 5.09 (SD=2.94) at time 2. Individual scores ranged from a decrease in performance of -7 to an increase of +7. Of the 54 children (there were two missing) 36 improved their performance overall on ToM tasks and 8 showed deterioration in their overall performance on ToM tasks. The remaining 10 children stayed the same.

On the emotion understanding tests of ToM, 39 of the 54 children showed an improvement from time 1 to time 2, with the majority of these improving their scores by over 4 across the emotion understanding tests. Only 6 participants showed deterioration in emotion understanding with the remaining 9 showing no change.

On the false belief ToM tasks, the majority of children (N=36) improved their performance from time 1 to time 2, with 10 remaining the same. Of the 54 children, 8 showed deterioration. The statistical analysis of these differences is shown in Table 5.4.

4.9.9.4. Results in relation to the hypotheses

H1. The correlation between the story organisation (overall measure of attachment representations) and ToM will remain stable over time.

As table 4.9.4 shows, there is a significant correlation between story organisation and the composite ToM score at follow up ($r = .43$, $N=52$, $p < .01$). This significant correlation using bi-variate analysis was found at baseline in Study 2 ($r = .31$, $N=52$, $p < .05$).

Table 4.9.4 Correlations between variables at time 2 follow-up

	Age	Total ToM	Peer Pos	Peer Neg	Story org.	TSDQ Prob	PSDQ Pros	TSDQ Pros
Age	-	.44**	.05	.13	.20	.45**	.30	-.37**
Total ToM	-	-	.04	.31**	.42**	.44**	.30	-.24
Peer Pos	-	-	-	-.05	.14	.05	-.02	-.09
Peer Neg	-	-	-	-	.12	.01	.01	.01
Narr SO	-	-	-	-	-	-.02	.38*	-.01
TSDQ prob	-	-	-	-	-	-	.05	-.5**
PSDQ Pro	-	-	-	-	-	-	-	-.1
TSDQ Pro	-	-	-	-	-	-	-	-

n=56. * p<.05; **p<.01.

Partial correlations performed on the cohort in Study 2 rendered the correlation between Story Organisation and ToM, controlling for verbal ability, non

significant. At follow up there was a similar picture, with the correlation reduced and also no longer statistically significant.

H2. ToM performance at baseline (as per study 2) will predict performance on ToM tasks one year later at follow-up.

As expected, ToM performance at baseline in Study 2 was found to predict performance a year later at follow up. Table 4.9.5 below shows the results for the stepwise regression that was run in this analysis. This analysis was run first in order to look at the unique contribution that each of the variables made to the variance in ToM performance one year on.

Table 4.9.5. Regression Analyses Predicting ToM Performance at time 2 from ToM at time 1.

Model 1

	B	Beta	t	Sig
Step 1				
TOM	.84	.71	5.9	.001

Statistics for Step 1: $F(1, 35) = 35.4$, $p < .001$, $R^2 = .51$

Step 2

Age	.12	.44	3.2	.01
-----	-----	-----	-----	-----

Statistics for Step 2: $F(2, 35) = 27.9$, $p < .001$, $R^2 = .63$

Step 3

Verbal IQ	.05	.28	2.0	.05
-----------	-----	-----	-----	-----

Statistics for Step 3: $F(3, 35) = 21.7$, $p < .001$, $R^2 = .67$

When the story organisation dimension of the MSSB was added as a third possible predictor of ToM performance at follow up it did not make a significant contribution to the variance. Therefore, children's narratives of their attachment-related representations, particularly with reference to the coherence

of these stories, are not making any significant contribution to their later performance on ToM tasks.

H3. There will be developmental change in children's understanding of false belief and of emotion with significant increases over time in the number of children succeeding on these tasks and in overall ToM performance.

A within subjects t-test was performed and found a significant increase over time in children's overall performance on ToM tasks ($t=12.85$, $df=54$, $p<.001$). There was also a significant increase over time in children's understanding of emotion over one year from baseline in Study 2 to follow up ($t=11.16$, $df=54$, $p<.001$) and in children's understanding of false belief ($t=9.8$, $df=54$, $p<.001$).

H4. Attachment-related representations will predict performance on ToM tasks at both time points.

Regression analyses were run at both baseline and one year follow up. At baseline in Study 2, story organisation representations were found to significantly predict performance on the aggregate ToM tasks once age and verbal ability were accounted for ($F(1, 47) = 8.3$, $p<.01$, $R^2=.36$). One year later at follow up, this finding was not upheld. This is in contrast with study 1 where story organisation and narrative coherence both, independently, contributed to the variance in ToM performance, although this was a smaller sample ($N=36$).

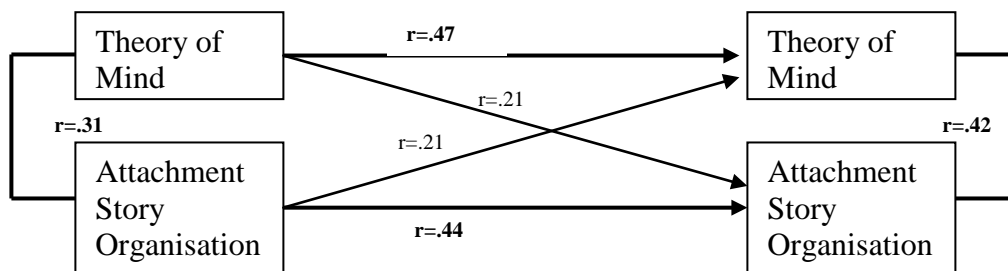
H5. Attachment representations at baseline in Study 2 will predict performance on ToM tasks one year later at follow-up.

When a stepwise linear regression was performed to test this hypothesis, it was found that ToM skills at baseline in Study 2 accounted for the majority of the variance (51%) in performance on all the ToM tasks one year later at follow up.

This only increased to 60% with the addition of verbal IQ and 67% with the addition of age. Attachment representations at baseline therefore were not significantly associated with ToM skills at one-year follow-up.

Children's scores on the story organisation dimension of the MSSB show stability over time, as shown in Figure 4.2 This finding is consistent with Waters et al., (1988) who reported significant though moderate longitudinal correlations between assessments at 3 and 4.5 years with a precursor measure of the MSSB. For the complete MSSB, Oppenheim et al., (1997) found moderate correlations between aggregate scores of positive, negative and disciplinary mother-child themes.

Figure 4.2 Theory of Mind and Attachment Story Organisation
Time 1 Time 2



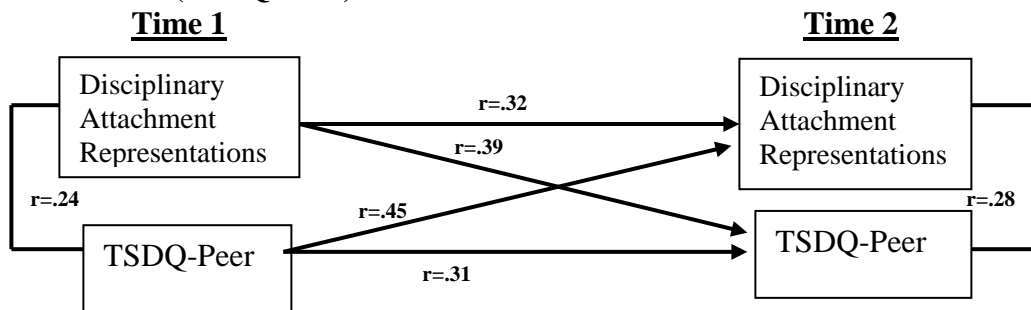
Linear regressions were run to look at the possible predictors of individual differences in ToM performance in Study 3. Taking the overall change in individual's performance across the task, the majority of the variance (48%) can be explained by verbal IQ, $F(1, 53) = 15.34, p < .001$. Similarly, individual differences in emotion understanding over the time points are explained mostly by verbal IQ, $F(1, 54) = 27.5, p < .001$.

H6. Children indicating more positive and well organised attachment-related representations are expected to display more prosocial behaviour and have fewer behavioural problems than their peers demonstrating more negative, less organised attachment representations.

Story organisation scores, reflecting attachment-related representations are significantly correlated with teacher strengths and difficulties questionnaire (SDQ) prosocial scores at baseline in Study 2 ($r=0.34$, $N=69$, $p<0.01$) and with teacher's SDQ prosocial scores one year later at follow up ($r=.37$, $N=50$, $p<.01$). Partial correlations, controlling for verbal ability upheld the correlation at baseline in Study 2 ($r=.47$, $N=69$, $p<.01$), but was not significant a year later at follow-up.

A finding at baseline in Study 2 was replicated a year later with the significant association between disciplinary attachment-related representations and peer problems subscales ($r=.28$, $N=54$, $p<.05$). This is the only dimension of the MSSB that is found to predict popularity or problems amongst the peer group at follow-up. Associations are not found between the other MSSB dimensions from baseline in Study 2 to one year follow up. That is, attachment representations do not predict social competence (as measured by SDQ and peer popularity) one year later. The association between children's attachment-related disciplinary representations and independently reported difficulties with peers is shown in Figure 4.3.

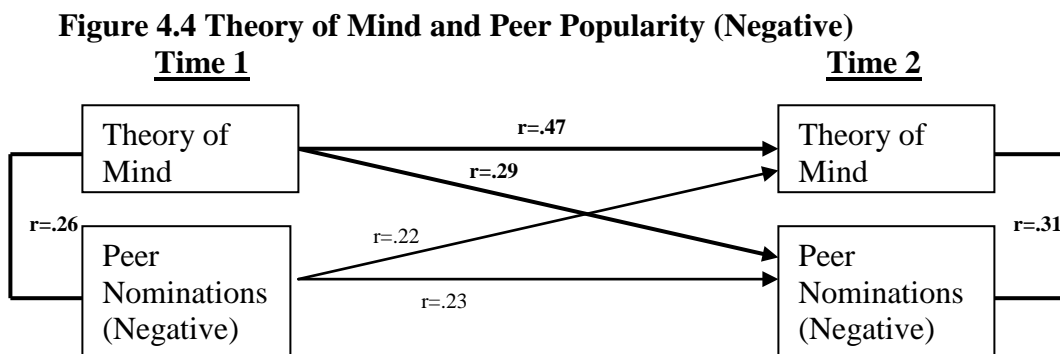
Figure 4.3 Disciplinary Attachment Representations and Teacher Related Peer Problems (TSDQ-Peer)



In order to examine the exact nature of ‘disciplinary’ and its unexpected association with problems in the peer group, an analysis was carried out to examine the precise nature of these representations in terms of the coding. As stated previously, if in the context of this study, ‘disciplinary’ refers to coercive and authoritarian rather than the firm/authoritative (which is seen as a quality of what is generally thought to be good parenting), then the association with teacher-rated behaviour problems with the peer group makes good sense and is an interesting finding. Analysis was therefore carried out to look at how often discipline was coded as discipline/prohibition compared with conflict/confrontational. A t-test comparing the mean scores for discipline/prohibition and conflict/confrontation found a significant difference ($t=11.15$, $df=54$, $p<.001$) with conflict/confrontation having higher mean scores. This result is key in terms of how ‘disciplinary’ has been operationalised in this thesis, and is given further consideration in the discussion in Chapter 6

H7. There will be an association between ToM performance and peer nominations, both positive and negative.

There was a significant association found between peer negative nominations and ToM scores ($r=.31$, $N=53$, $p<0.01$) but not for positive peer rankings and ToM scores. ToM at baseline was found to predict negative peer popularity at follow-up as shown below in Figure 4.4.



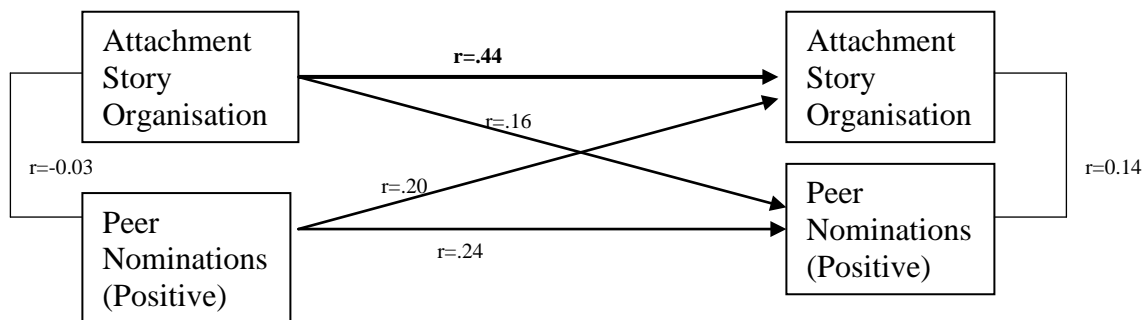
H8. Children with siblings will perform significantly better on ToM tasks at both times.

As there were no significant correlations between presence of a sibling and ToM scores, or with presence of an *older* sibling and ToM skills, regressions were not performed to look at the predictive value of this variable.

H9. Peer popularity (positive peer nominations) will be predicted by earlier attachment representations.

Popularity amongst peers at one year follow up was not found to be significantly predicted by measures of either attachment or ToM as shown in Figure 4.5 .

Figure 4.5 Attachment Story Organisation and Peer Popularity (Positive)
Time 1 **Time 2**



Regression analyses were also performed to test out whether negative peer nominations would be predicted by earlier negative or disciplinary attachment representations, and/or poor performance on ToM tasks. None of the variables entered in a stepwise regression; age, ToM and story organisation scores, were found to significantly predict the variance in negative peer nominations. This is interesting, given that teacher's SDQ ratings of children with problems amongst their peer groups showed a different picture, with disciplinary representations

significantly associated with problems in the peer groups at both within and across time points (shown in Figure 4.5 above).

The main positive findings from the follow-on data are now discussed in relation to the research questions and hypotheses.

4.9.9.5. Discussion

There were two main positive findings in relation to hypotheses 2 and 7 at one-year follow-on, and one further positive finding.

H2. ToM performance in Study 2 will predict performance on ToM tasks one year later at follow-up

In terms of the second hypothesis, as expected, children's performance on ToM tasks improved over time, with ToM performance at baseline in Study 2 being highly predictive of the aggregate scores for ToM performance at one year follow up. There was a significant improvement in both children's false belief understanding and emotion understanding and the individual differences in these changes is mostly explained by children's verbal ability. Bivariate correlations between ToM variables and attachment representations are significant and consistent across time, but partial correlations controlling for verbal ability rule out the significance of this relationship.

H7. There will be an association between ToM performance and peer nominations, both positive and negative

Although unexpected (Cassidy & Shaver, 1999), the association noted between ToM ability and negative peer rankings backs the findings of Happé & Frith

(1996) who suggest that a child may use their ToM skills for deception and manipulation of their peers. ToM may therefore be linked with antisocial behaviour and consequent peer unpopularity.

The role of verbal ability in ToM skills and children's mentalizing also emerged as an important factor worthy of further attention. This is discussed in more detail, along with a discussion of the above findings, in Chapter 6. Results in relation to the other hypotheses are now discussed.

Turning to the role of attachment-related representations, what are the possible explanations for the non-significant predictive relationship between attachment and ToM? These findings support the study by Meins et al (2002) where there was no relation between attachment security and children's ToM performance. The results failed to replicate the author's previous findings (Meins et al., 1998) of a link between security of attachment in infancy and children's ToM at age 4. Instead, the results supported one of the authors' (2002) hypotheses that early maternal mind-mindedness is a better predictor of ToM performance than is infant-mother attachment security. The lack of a significant relationship between attachment representations as measured by the MSSB in this study and ToM may be further support for the need to examine parent-child relationships beyond the level of attachment security and to take into greater consideration the observed interaction between infant and mother and the appropriate use of maternal mind-mindedness. This issue is considered further in the discussion in Chapter 6.

It could be hypothesised that the lack of an association between ToM and the attachment-related representations possibly reflects an important developmental change in the sequel of ToM skills at different developmental stages. For example, at a young age the key attachment relationship is one of the most important influences on children's understanding of mental states and may be

related to the mother's mind-mindedness (Meins, 1998). As children get older, their mentalizing skills are influenced by a wider range of significant others including siblings and peers (Brown, Donnelan-McCall, & Dunn, 1996).

Coherent attachment-related representations were not found to significantly predict performance on ToM tasks, controlling for age and verbal ability at either baseline, Study 2, or one year later. In terms of the importance of this variable longitudinally, attachment representations, both the story organisation and narrative coherence variables, were not found to be predictive of either peer popularity or ToM skills. Neither was having a sibling, or having an older sibling were found to be related to children's performance on ToM skills.

The significant positive association between children's disciplinary attachment-related representations and peer problems (rated by teachers in the SDQ) raises some interesting questions. This finding does not confirm the research by Oppenheim et al., (1997) and von Klitzing et al., (2007) who found that children with a large number of disciplinary themes showed more pro-social behaviour and social initiative in their peer group. They were also found to have fewer externalising behaviour problems. It is curious, therefore, to find the association between disciplinary representations and peer problems, particularly as this shows stability across the two time points. The finding in Study 2 at both baseline and follow up implies that disciplinary representations have a more negative connotation than was previously thought in relation to the coding schemes for the MSSB. Analysis of the specific codes of this dimension (reported above in the results) indicate that children's attachment-related narratives with respect to discipline scores specifically reflect the conflict/confrontation element of this dimension, with lower scores for children's representations of mothers' use of discipline and prohibition in their narratives. Previous research has identified disciplinary representations as related to authoritative control (Oppenheim, et al., 1997). Moreover, they are

seen as *by definition* reasonable, involving descriptions of appropriate limit setting. The disciplinary representation score in Oppenheim et al's, (1997) research, did not capture the less optimal types of parental control, namely those that are unreasonable, parent centred and authoritarian. It is interesting, nevertheless that these qualities might be expected to be associated with problems in the peer group. Perhaps the data from the present study poses a challenge to the idea that the Negative and Disciplinary representations are orthogonal. It is certainly the case that disciplinary and negative representations reflect regulation and dysregulation of negative affect and behaviour, respectively, are most closely associated with outcome measures of children's behaviour. This topic is returned to in the discussion Chapter 6.

What are the implications of these findings in relation to the theoretical issues raised in the introduction to this chapter? With reference to the developmental changes in when and why children talk about mental states, analyses took account of children's attachment representations and relationships with older siblings in the family as possible influences on children's developing ToM. In contrast to Perner, Ruffman and Leekam's (1994) finding that children from large families passed ToM tasks at an earlier age when compared with children from smaller families or no siblings, no such relationship was found in the present study.

The findings also provided no support for the hypothesis that attachment representations will be more strongly related to peer popularity than ToM and verbal IQ. No significant correlations between peer popularity and attachment representations were found. This does not support the findings of Pastor (1981); Dodge, (1983), Erikson et al., (1985); LaFreniere & Sroufe (1985); Jacobson & Willie (1986); Cohn (1990) and Fagot (1997), who all found significant differences in children's ability to get along with their peers depending on their attachment classifications. However, many of these studies relied predominantly

on teacher report and Cohn (1990) found that although peer nominations for aggressive behaviour backed the proposed relationship, peer nominations for prosocial behaviours were not associated with attachment. Existing studies suggest that children's social standing in their peer group may not be a stable phenomenon (Cillessen, Bukowski & Haselager, 2000), and it may therefore not be the most appropriate way of testing attachment/peer relations links. Other factors believed to play an important role in peer popularity were not taken into account in the peer popularity measure. For example, physical attractiveness, athletic ability, temperament, or the amount of previous peer experience (relevant to the youngest children) which are unlikely to be directly correlated with a child's attachment representations and may have consequently obscured any correlation in this sample size. The meta-analysis carried out by Schneider et al., (2001) found an expected relation between secure attachment to mother, and later successful peer relations. However, the effect size was small, and Schneider and his colleagues concluded that this link could not be interpreted as causal. They pointed out that the small effect size was consistent with the idea that attachment is only *one* of the many influences on peer relations and that other aspects of parent-child relationships and child or mother characteristics accounted for the additional variation in the children's peer relations. These characteristics include children's temperament, childcare experience and attachment to caregivers in childcare, mother's depression, attitude to parenting, parenting practices, psychosocial adjustment and observed warmth and emotional expressiveness with their children (Schneider et al., 2001).

4.9.9.6. Limitations of the study

One problem may lie in the measure of attachment. As stated earlier, it is attachment related representations that are purported to being measured here,

and not attachment classified behaviours. It is therefore possible that other measures of attachment may be better at demonstrating a link between these two areas, which may include a measure of attachment *behaviours*. Traditional child attachment measures are usually centred on the experience of separation and reunion, which is thought to elicit feelings related to security in the individual. The story stems are mainly rooted in conflict scenarios, which may produce rather different representations from the individual., The MSSB certainly seemed to be eliciting representations of some sort, with several of the children even using 'I' instead of the name of Child 1 at times. This implies that some participants did identify with the older child, but for others, this is uncertain as many of them were not older children themselves. The fact that a composite score is taken for representations of adult figures by child figures may be a limitation of the measure. Oppenheim, Emde & Warren (1997) did find a correspondence between children's representations of mothers and maternal self-reports of overall qualities of parenting, without going so far as to say that the representations accurately depicted maternal behaviour.

The possibility must be raised that children's performance on the story-stem tasks is consistent over time because they remembered the stems and their completions from the previous session. Such remembering is possible, even one year apart, and some children have explicitly told researchers that they remember the stories (Bretherton and Oppenheim, 2003). Further investigations of test-retest stability are required.

Consistent with Astington's (2005) work, the results attest to the importance of language, or verbal ability as measured in this study, to ToM development, and particularly to the stability of individual differences developmentally. The constraints of this study did not allow for an observation of parent-child discourse which may have given a greater insight into some of the mechanisms underlying the individual differences in children's ToM skills. It has been

suggested that the use of internal state language and sensitive responsiveness on the part of caregivers facilitates the acquisition of mentalizing skills (Dunn, 1996). It would be useful to investigate children's use of internal state language with and about their peers, or teacher's use of this language in the classroom for corroboration of this data. A small-scale qualitative study in this thesis was designed as an attempt to start addressing this outstanding question (see Appendix L).

Despite the large body of evidence from previous studies, it is also possible that there is no direct relationship between the constructs, and the notable link with peer popularity is in fact **influenced** by some other factor, such as social skills learned in the family of origin (Coie & Kupersmidt, 1983; Dodge, 1983), rather than attachment itself. Hubbs-Tait et al., (1994) found no connection between attachment status and maternal reports of children's social skills and friendship/successful peer relations. In an older set of children, Lieberman, Doyle & Markiewicz (1999) found that children's reports of positive friendship qualities and lack of conflict within their best friendships were related to attachment, whereas the presence of a reciprocated friendship and popularity were not. These findings support the view that generalisation of attachment representations is restricted primarily to the formation of close peer relationships (Bowlby, 1982; Youngblade & Belsky, 1992), rather than general acceptance or popularity, and may explain the lack of association seen here.

4.9.9.7 Summary conclusions and directions forward

The main positive findings from this follow-on study are therefore the two replicated findings of the association between disciplinary attachment representations and peer problems, and negative peer ratings and ToM skills.

There was also an expected finding for an increase in ToM performance with increasing age.

Studies 1 and 2, which examined the association between attachment-related representations and ToM and their relationship to peer popularity, have highlighted the need for an examination of generalised versus relationship-specific mentalizing.

There remains a lack of conceptual distinction between these the two constructs of attachment and ToM and further research on both the construct and discriminant validity of mentalizing, and coherence (in relation to attachment) is needed. Particularly, work which focuses on trying to strengthen the construct validity of the MSSB, specifically with respect to the secure, insecure and disorganised classifications is much needed. It became clear as the thesis progressed that as far as measures of attachment are concerned, there is as yet no measure which has the construct validity of the Strange Situation, for the age group under investigation in these studies, although coding schemes have developed in their sophistication over the years, and there is burgeoning evidence for the construct validity of the MSSB (e.g., Steele et al., 2003). The MSSB was therefore the best available measure of children's attachment-related representations, but there is a need to establish exactly *how* related to attachment these narratives are.

It remained a point of methodological concern that children's popularity amongst their peers was measured by something as seemingly crude as a simple count of nominations from their immediate year group. Therefore, a small study was devised in order to incorporate an additional measure of children's relationships with their peers, to examine this variable together with the data already collected on this group of children to see if anything more meaningful

could be revealed about the data with respect to children's relationships with peers.

Initially, a researcher carried out naturalistic observations of the children at break times focusing on their interactions with their peer group in the playground. It proved difficult to observe these interactions from a distance however and produce meaningful categories for these interactions, particularly as the verbal interchange between peers was hard to listen in to without being extremely conspicuous. A different methodology was adopted therefore, which is outlined in the next study in Chapter 5.

CHAPTER 5 – STUDY 3: PEER REPRESENTATIONS

5.0 Chapter Overview

As the previous chapters have discussed in some detail, social competence, a later correlate of secure attachment, is thought to be facilitated by the ability to accurately conceptualise the thoughts and feelings of others. Contrary to this, some children who are seen as not being socially competent, such as bullies, have sophisticated mentalising skills. This finding has been supported in Study 2 at baseline and follow-on. Secure attachment has also been linked to ToM ability in Study 1. In a parallel line of research, according to attachment theory, internal working models (IWM) of the child-mother dyad are important in the formation of and expectations of subsequent relationships. These models are said to influence information-processing at different levels, and may influence representations of peer relationships. IWMs may have social-cognitive and/or affective-cognitive components, relating to ToM and representations respectively. This study follows in the footsteps of the work of Cassidy et al., (1996) which focused specifically on the connection between attachment and peer-related representations. As previously outlined, this research pointed to the link between attachment and peer relationships as **influenced** by peer representations. This third study examined the role of representations not just of mothers but also in addition to peer popularity, representations of peers. These were again analysed with children's performance on a range of ToM tasks in relation to social competence (see Appendix J for ToM tasks).

An earlier hypothesis was revisited concerning the association between attachment representations and social competence. This time, instead of using peer popularity as an index of social competence, peer representations were used. It was thought that this might more accurately reflect the relationship between peers. The hypotheses examined were that children with more positive

representations of mothers would be more socially competent and have more positive peer representations. Associations were also examined between peer representations and measures of pro-social behaviour and problem behaviour (the SDQ). The results supported the hypothesis that more positive representations of mothers are associated with social competence, but did not support an association with positive peer representations. Contrary to the last hypothesis, inaccurate mentalising was found to be a better predictor of peer problems than peer representations.

5.1 Peer representations

As previously discussed, children's own representations of the infant-mother dyad are thought to influence their subsequent relationships and interactions. In middle childhood, peer relationships are especially important and are associated with the intimacy and strong emotion that may elicit such an influence. Recent studies have sought to further understanding of the influence of the early attachment relationship on subsequent relationships, particularly with peers (e.g., Futh et al., 2008). Drawing on this work and that of other such as Cassidy et al (1996) , the present study focused specifically on the connection between attachment and peer-related representations. Peer representations in Cassidy et al's (1996) study were elicited by assessing children's attributions of peer intent in an ambiguous negative event. It has been suggested that these attributional processes have much in common with the affective-cognitive processing that may be a part of the formation of internal working models (Belsky & Nezworski, 1988). Attributional bias of this type has been found to link to children's peer relations and social competence (Crick & Dodge, 1994).

Good peer relations are also thought to be facilitated by the ability to conceptualise the thoughts and feelings of another (Bosachi & Astington, 1999; Watson et al, 1999). However some children who have difficulties with social

relationships and are not necessarily seen as socially competent, such as bullies, do not exhibit corresponding mentalising deficits, and may even show much insight into the mental experience of others (Crick and Dodge, 1994; Sutton, Smith & Swettenham, 1999). This is a finding that has been replicated in Study 2 at both baseline and follow-on. At clinical levels, children with conduct disorder were found to have impairments in these skills (Happé & Frith, 1996).

In middle childhood, when normal children have acquired this basic ability to mentalise, they become capable of analysing others with respect to psychological rather than physical characteristics, and of understanding that thought and behaviour are distinct and sometimes conflicting entities. It is this 'higher order' ToM (Happé, 1994) that was examined in this third Study. In looking at the capacity of normal and autistic children to attribute mental states, Happé used a battery of more complex and naturalistic stories instead of traditional tasks. Responses were categorised according to the quality of mentalising, that is, whether explanations for the situation were given in terms of relevant mental or physical states. This ToM measure was included to examine the hypothesis that the link between attachment and social competence in middle childhood is associated with this capacity, as it seems to be in younger children.

5.2 Aims and hypotheses of the present study

This third study examined competence as encompassed by social skills and sociometric status, and thus looked at it from the multiple perspectives of parents, teacher and peers. The previous studies in this thesis have focused on the perspectives of parents and teacher. As previously outlined, the subscales of the Strengths and Difficulties questionnaire assess hyperactivity, conduct problems, emotional problems, peer relationship problems and prosocial behaviour, giving a rounded picture of the child's social competence. The breakdown of the concept of competence into these components may shed light

on which aspects of behaviour may be particularly associated with representations, and whether social competence has context-dependent characteristics. It may be hypothesised that emotional problems, for example, are linked to negative representations, and associated with the disorganised category of attachment, but this may be different for parent and teacher ratings of the behaviour.

For purposes of comparison, it is useful to have concurrent representational measures of both maternal and peer relationships. In parallel to the positive, negative and disciplinary factors from the story stems, the measure of peer-related representations asks children to attribute different aspects of peer intent. That is, children choose between positive, negative and neutral attributions for an ambiguous act. This study aimed to bring together two strands of research concerning social competence - mentalising skills and peer representations, and investigated which, if either, of these components better predicted the outcome measure the Strengths and Difficulties Questionnaire. The difference could be conceptualised in terms of social-cognitive or affective-cognitive processing. In summary, the hypotheses examined were that:

H1. Children with more positive representations of attachment will be more competent and more popular with peers.

H2. Children with more positive attachment representations will have more positive representations of peers.

H3. The quality of peer representations will better predict social competence (as measured by the SDQ) than mentalising skills in general.

5.3 Method

The method and procedure employed in this study were the same as set out in the previous studies in this thesis. The addition of the peer representations measure and the higher order ToM task were the only changes, and these measures are described below in 5.3.2.

5.3.1. Ethical Consent Procedures

Consent for the study was obtained from the Guy's Research Ethics Committee (99/09/05) and is given in Appendix A. As modifications were made to the initial study, renewed consent was obtained. Letters of approval of all amendments to the study are also given in Appendix A.

5.3.2. Participants

Participants consisted of 22 pupils from a Year 4 class in a Primary School in the Borough of Southwark in South London. The focus of this study was therefore on a small cohort of older children. A consent form was sent out to parents (see Appendix B), 100% of whom responded with 79% agreeing to take part in the study. The inclusion criterion was having a competent standard of English, as measured by verbal IQ. The mean verbal IQ of the sample was 102.82 (SD 12.69) and ranged from 77-124. One participant was excluded after emerging with a sub-70 verbal IQ. There were 10 girls and 13 boys. Ages ranged from 8.14 to 9.47 years with a mean age of 9.01 years (SD 0.38). The children came from a wide range of ethnic groups. Socio-economic class was not determined, although the Borough is a relatively deprived inner London area and attendees of a local state school are likely to reflect this.

5.3.3. Measures

Measures used in this study were the same as for the previous two studies, i.e., the MSSB, WISC-III, peer popularity, and the Strengths and Difficulties Questionnaire and protocol and coding can be found in the Appendices. The Pianta Student-Teacher Relationship Scale was excluded from this study due to previous experience of receiving a low return from teachers on two measures. It was therefore decided that it was better to get a higher return on just one measure, the SDQ.

In addition to the previously used measures, a measure of peer **attributions** was included to assess children's attributions of peer intent, this is described below. The ToM tasks differed as the younger group were not included in this study. These tasks are described in **5.3.2.3**

5.3.3.1. Peer Attributions

There were six stories based on those used by Dodge and Frame (1980) to tap attributional bias in peer representations, modified by Cassidy et al (1996). The measure was obtained from the original authors and the wording was then anglicised. The first three stories involve familiar peers (classmates) and the second three stories involve unfamiliar peers in public places (a shopping centre, a cinema and a toy shop). Stories were counterbalanced within the questionnaire. Due to limited time, responses were in the form of a forced-choice format, following one option from the original study, with 3 points allocated for a hostile attribution, 2 for a neutral attribution and 1 for a positive attribution. The total possible range of scores was 6-18, with high scores taken to indicate negative representations of peers. The full text of these measures is given in Appendix F.

5.3.3.2 Social Competence Measures

Social competence was indexed by measures used in the previous studies: peer popularity and the SDQ (both teacher and parent versions).

5.3.3.3 Theory of Mind Measures

Happé's Strange Stories (Happé, 1994) were used in this study. These stories look at higher order ToM skills, measuring the child's ability to recognise the different motivations behind utterances that are not literally true. The vignettes cover a range of situations, for example, white lies, jokes and misunderstanding. In the white lie scenario, for example, a child in the story doesn't like her aunt's new hat but says that she does. Participants are asked to explain why. Responses are then coded according to whether they are appropriate or not, and are mental or physical state justifications (a correct mental state justification in this case would be that the child does not want to hurt her aunt's feelings). There were therefore four categories of response, and total numbers of responses in each category were analysed. Six stories were taken from the set that covered a range of performance by the normal participants in the original study. The rationale for this was to avoid ceiling or floor effects. The stories chosen were double bluff, persuasion, sarcasm, figure of speech, contrary emotion and white lie. These stories can be found in Appendix I.

5.4 Procedure

Measures were administered over two sessions with each child. Children were removed from the classroom individually and taken to a quiet side room to be free from distraction. Peer popularity, ToM tests and the verbal subtests of the WISC were aimed to be administered in the initial session, in order to build up a rapport with the child before beginning the representational measures. The order of measures was adjusted to fit into the time available, and thus varied, but was

not formally counterbalanced. The protocol for each measure was followed (see appendices for full details).

5.5 Results

The results section is divided into a summary of the data for individual measures and analyses in relation to the hypotheses.

5.5.1 Summary statistics

As can be seen in Table 5.1, the mean ratings for the main outcome measure, the Strengths and Difficulties Questionnaire (SDQ) were fairly similar for parents and teacher. Within this, there were some anomalies in the assessment of individual children between the two raters.

Table 5.1: Summary of teacher and parent ratings for the SDQ, showing subscale and total difficulty score means, standard deviations and range.

		n	Mean	SD	Range
Emotional	<i>Teacher</i>	22	2.68	2.95	0-10
Symptoms Scale	<i>Parent</i>	20	3.30	2.68	0-9
Conduct	<i>Teacher</i>	22	2.18	2.95	0-8
Problems Scale	<i>Parent</i>	20	1.95	1.96	0-7
Peer	<i>Teacher</i>	22	2.77	1.54	0-6
Problems Scale	<i>Parent</i>	20	2.30	2.20	0-9
Prosocial Scale	<i>Teacher</i>	22	8.14	2.75	1-10
	<i>Parent</i>	20	8.65	1.39	6-10
Hyperactivity	<i>Teacher</i>	22	4.45	3.47	0-10
Scale	<i>Parent</i>	20	3.65	2.52	0-8
Total Difficulties	<i>Teacher</i>	22	12.09	7.02	3-23
Score	<i>Parent</i>	20	11.60	6.58	1-28

As can be seen, there was a wide range of ratings in the class, with parents generally rating their children as high on the prosocial subscale.

Table 5.2: Mean number of justifications given by type, for ToM vignettes.

	n	Mean	SD	range
Correct Mental State Justification	22	2.95	1.36	0-5
Incorrect Mental State Justification	22	1.09	0.92	0-3
Correct Physical State Justification	22	1.23	0.81	0-3
Incorrect Physical State Justification	22	0.55	0.91	0-3

The story stems produced a variety of responses over both the content themes and the assessment of the narrative qualities. As results were averaged over all the stories, the possible range for the mean number of positive and disciplinary representations was 0-3 on a continuous scale, and 0-2 for negative representations.

For the quality dimensions, the mean rating for each category was between 1 and 4, on a continuous scale.

The responses to Cassidy's peer representation questionnaire looking at attributions ranged from 7-13 (from a possible range of 6-18), and had a mean of 10.14 (s.d. 1.83). High scores represented negative representations of peers.

Table 5.3 Mean scores for each coding dimension of the story stems.

	n	Mean	SD	Range
Positive Representations	22	0.61	0.52	0-2.25
Negative Representations	22	0.26	0.29	0-0.87
Disciplinary Representations	22	0.44	0.37	0-1.25
Key Issue	22	2.93	0.64	1.50-3.87
Story Resolution	22	2.75	0.74	1.62-3.87
Bizarre/Atypical	22	3.41	0.84	1.50-4.0
Narrative Coherence	22	3.33	0.59	2.25-4.0

5.5.2 Relationships between the scales

Before turning to the hypotheses, the relationships between the scales were examined. In order to be able to treat the data as a whole in subsequent investigation, preliminary analyses to detect gender differences were performed on the measures using t-tests. These revealed no significant gender differences in attachment or peer representations, IQ, ToM and peer popularity. Boys differed significantly from girls only in teacher rating of conduct problems ($t_{20}=2.584$, $p=0.018$). Parametric tests were used for subsequent analyses. Pearson's correlations were carried out to examine whether Verbal IQ was associated with any of the measures. No significant results were found, suggesting that the measures were not dependent on verbal ability.

To examine the relations between elements of the social competence measures, a further series of correlations were carried out. Several subscales within the SDQ correlated with each other, as did SDQ subscales (conduct, hyperactivity, total) between teacher and parent versions.

Correlations carried out on the peer nomination measure indicated that more popular children had fewer behavioural problems on several subscales of the

SDQ. Rankings on the popular scale correlated positively with parent and teacher rating of peer problems ($r=0.59$, $N=22$, $p=0.007$; $r=0.47$, $N=22$, $p=0.26$), hyperactivity ($r=0.59$, $p=0.05$; $r=0.66$, $p=0.001$) and total difficulty scores ($r=0.46$, $N=22$, $p=0.04$). More popular children had fewer peer problems, were less hyperactive and had fewer difficulties overall. In interpreting these results, the distinction should be made here between the *significance* and the *strength* of the correlations (Tabachnick & Fidell, 1983, p.48). Although significant, the actual proportion of variance accounted for by these associations ranged from 21%-36%. The unpopular scale correlated with parental prosocial ratings ($r=0.62$, $N=22$, $p=0.03$; and correlated negatively with parent ratings of conduct problems ($r=-0.48$, $N=22$, $p=0.03$) and total difficulties score ($r=-0.46$, $N=22$, $p=0.04$), with the proportion of variance accounted for ranging from 22%-39%. Less popular children therefore, were rated as less prosocial and as having more conduct problems and difficulties.

Table 5.4 below shows intercorrelations between the coding dimensions of the story stems.

Table 5.4: Correlations between dimensions on the story stems

	Positive	Negative	Disciplinary	KI	SR	B/A
Negative	-0.48*					
Disciplinary	-0.53*	0.53*				
Key Issue	0.56**	-0.49*	n/s			
Story Resolution	0.75**	-0.59**	-0.61**	0.78**		
Biz/Atypical	0.57**	-0.85**	-0.63**	0.56**	0.70**	
Narrative Coherence	0.49*	-0.70**	-0.70**	0.66**	0.74**	0.75**

* $p < 0.05$, ** $p < 0.01$, n/s = non-significant

5.5.3 Results in relation to the hypotheses

H1 Children with more positive representations of attachment will be more competent in that they will have fewer behaviour problems, and will be more popular with peers.

In the following analyses examining this hypothesis Verbal IQ was controlled for by using a partial correlation. A correlation between positive attachment as elicited by the story stems and sociometric status was carried out to investigate the hypothesis, which was not supported.

Table 5.5 Correlations between Parent SDQ ratings and Attachment-related representations

	Parent Rating of Hyperactivity	Parent rating of Emotional Problems	Total Difficulties as rated by Parents	Total Difficulties as rated by Teachers
Positive Representations	-0.60**			
Negative Representations	0.59**			
Key Issue	0.56*			
Story Resolution	-0.58**	-0.53*		
Bizarre/Atypical	0.59**		-0.47 *	-0.59**
Narrative Coherence	-0.79**		-0.64**	-0.48*

p< 0.05, ** p<0.01

Some significant results in the predicted direction were found in relation to the second measure of social competence, the SDQ. Several dimensions of the story stems remained significantly correlated with parent rating of hyperactivity as follows: Positive, ($r=-0.60$, $N=22$, $p<0.01$); Negative, ($r=0.59$, $N=22$, $p<0.01$); Key Issue, ($r=-0.56$, $N=22$, $p<0.01$); Story Resolution, ($r=-0.58$, $N=22$, $p<0.01$); Bizarre/Atypical, ($r=0.59$, $N=22$, $p<0.01$); Narrative Coherence, ($r=-0.79$, $N=22$, $p<0.001$). The variance accounted for ranged from 31% to 63%. Parent rating of emotional problems also correlated with Story Resolution ($r=-0.53$, $N=22$, $p<0.05$). Total Difficulties as rated by parents correlated with the Bizarre/Atypical dimension ($r=-0.47$, $p<0.05$) and Narrative coherence ($r=-0.64$, $N=22$, $p<0.01$); Total Difficulties as rated by teachers was also linked to Narrative Coherence ($r=-0.48$, $N=22$, $p<0.05$). The presence of Bizarre/Atypical elements was correlated with teacher ratings of conduct problems ($r=-0.59$, $N=22$, $p<0.01$).

In order to examine this first hypothesis, the three types of representational variables were considered separately, as they reflect conceptually distinct aspects of children's representations of mothers. Standard multiple regression analyses were performed, with parental ratings of hyperactivity as an outcome measure, since positive and negative dimensions of the story stems had correlated significantly with this rating. The number of positive representations were found to account for most of the variance, with negative representations also accounting for a significant amount when the variables were entered into the equation in different orders: $F(3, 16) = 5.81$, $p<0.01$). The number of Disciplinary representations was not significant in the regression equation. Negative and Disciplinary dimensions were distinct, although not orthogonal dimensions.

*H2 Children with more positive attachment representations will have more positive **attributions** of peers.*

Correlations were performed to examine this hypothesis. Peer **attribution** scores were significantly associated with ratings on any of the dimensions of the attachment measure.

*H3 The quality of peer **attributions** will better predict social competence than mentalizing skills in general.*

To determine which outcome variables were relevant to investigation of the hypothesis, correlations were carried out to examine the relationship of peer **attributions** with the different measures of social competence. Peer **attribution** scores were found to correlate negatively with teacher ratings of peer problems ($r=-0.46$, $N=22$, $p=0.03$), accounting for 21% of the variance. No other significant correlations were found with this measure.

The relationship between mentalizing skills and social competence was explored using correlations to find appropriate outcome variables in relation to the hypothesis. Performance on the ToM measure was broken down into four components. The first three of these, the number of correct mental state justifications, and correct or incorrect physical state justifications were not found to correlate with other measures. The number of incorrect mental state justifications was found to correlate with teacher ratings of peer problems ($r=0.52$, $N=22$, $p=0.01$), hyperactivity ($r=0.45$, $N=22$, $p=0.04$) and total difficulty score ($r=0.48$, $N=22$, $p=0.04$). However, When Verbal IQ was controlled for by using partial correlation, only the association with peer problems remained significant ($r=0.49$, $N=22$, $p=0.03$), reducing the variance explained from 27% to 24%.

Teacher ratings of peer problems were found to correlate with both peer **attribution** scores and incorrect mental state justifications on the ToM measure. Further analysis to examine which was the better predictor of competence therefore used this subscale as an outcome measure. In standard multiple regression analyses the number of incorrect mental state justifications was a marginally significant predictor of peer problems ($p=0.05$), and was a better predictor than peer **attributions**, accounting for a larger part of the variance when it was entered last into the regression equation: $F(2, 19) = 4.99, p=0.02$).

5.6 Discussion of Study 4

Overall, the results supported a general link between children's representations of mothers and the child's social competence, supporting the first hypothesis of the study, that *children with more positive representations of attachment will be more competent*. This is in keeping with previous research using alternative designs and attachment measures. With high scores on the quality dimensions of the coding system representing more positive, secure attachment, a significant amount of the variance in the outcome measures were accounted for. In particular, hyperactivity, emotional problems and total difficulties related to the story stems. Consistent with the hypothesis, children with more negative representations were less socially competent. The number of disciplinary representations was not found to correlate with any of the outcome variables which differ from the findings in the previous two studies.

No evidence was found to support the second hypothesis, that *children with more positive attachment representations will have more positive representations of peers*. This is in contrast to the findings of Cassidy et al (1996) who linked ratings of parental rejection to hostile attributions of peers. This possibly points to more salience in the negative representations children have of their attachment figures in relation to negative behaviours. Additionally,

this may have been caused by limitations in the measure or could also have been due to less securely attached children of the avoidant type idealising their representations of either peers or parents. The complexities of trying to map out a pathway from early attachment security/insecurity to later relationships with peers and general social competence will be discussed further in Chapter 6.

The last hypothesis was that *the quality of peer representations will better predict competence than mentalizing skills in general*. The ToM measure was somewhat difficult to interpret as the results were broken up into four components (correct and incorrect mental and physical state justifications). There was no simple link with verbal IQ, and this raises a question about individual differences in mentalizing ability. In her paper, Happé (1994) considers that as ‘the verbal subtests of the WISC/WAIS-R make pragmatic demands upon the subject, it may be that ToM task performance and verbal IQ (insofar as it inadvertently measures communicative competence) are not independent measures’ (p.132) and therefore does not advocate controlling for verbal IQ as this ‘over-controls for the variable of interest, ToM’. As the present study was looking at ToM in the sense of perspective-taking, this may have been less important. The overall role and importance of verbal ability is discussed further in Chapter 6.

Without controlling for verbal IQ, associations were found between the number of incorrect mental state justifications and teacher ratings of peer problems, hyperactivity and total difficulties. With this variable accounted for, only peer problems remained significantly correlated. Contrary to the hypothesis, incorrect mentalizing was found to be a slightly better predictor of peer problems than peer representations, suggesting that the relevance of representations is not as important as accuracy in the ability to conceptualise others’ thoughts. Such problems could be seen as associated not with a lack of mentalizing ability, but rather with a misapplication of this ability. Thinking that others think positively

about you may buffer the negative effects of treating them badly, as might be postulated by cognitive dissonance theory (Festinger, 1957). This links to the idea raised by Crick & Dodge (1994) that deficits in social competence are associated with biased insight into the minds of others. It seems that the capacity to recognise mental states shapes or is shaped by individual differences in social competence with peers.

The two measures of ToM and peer representation both involve perspective-taking of a sort, and may have been differentiated mainly by the affective content. A study by O'Connor and Hirsch (1999) found significant intra-individual differences in adolescents' mentalizing. This related to the affective quality of the relationship with particular teachers, with more accurate mentalizing about better-liked teachers. In the present study, intra-individual differences could not have been detected, as a general ToM ability was assessed. In their study, variations in ToM ability within the individual suggest that it is not linked to verbal IQ, and that there is no simple relation with relationship history. Differences may be due to variations in the motivation to mentalize, which may be facilitated or inhibited by a mechanism such as an IWM. Thus both peer **attributions** and ToM measures may reflect different aspects of an IWM. Anger and anxiety, which may result in the dismissing of emotional experiences of the self and others, have been implicated by attachment theory as contributing to selective mentalizing (Fonagy & Target, 1997). The association of incorrect mental state justifications with hyperactivity is suggestive of an attentional deficit, or limited regulation of behaviour, that may cause or compound the inaccuracies in mentalizing.

The high correlation between dimensions of the story stems may indicate confounding of the variables at some levels. This is in contrast to the research of Oppenheim et al (1997) who found the dimensions to be independent. However, the individual elements did have some associations with separate subscales of

behaviour. Narrative coherence was perhaps the most telling dimension of the story stems, relating to parental ratings of emotion, hyperactivity and total scores, even when verbal IQ was partialled out. Narrative coherence is thought to be the most important indicator of attachment security in the Adult Attachment Interview (Main, 1991) and other attachment measures (Bretherton, Ridgeway & Cassidy, 1990; Main et al., 1985). In the final discussion in Chapter 6 attention will be given to the role of coherence in this measure of children's attachment-related representations, with reference made to the role of this aspect of adult attachment narratives. The importance of the coherence of the attachment-related representation narrative has been a recurring theme throughout this thesis, and the discussion in Chapter 6 aims to examine this, as yet, not well understood construct.

Attachment theory puts forward the notion of emotion regulation as learnt within the bounds of a secure relationship (Belsky & Cassidy, 1994), supporting the link found here in Study 3 between attachment-related representations and emotional problems scored on the SDQ. The negative correlation between narrative coherence and total difficulties (rated by parent) implies that those children with the more secure style of attachment-representations (as implied by a coherent narrative) were more likely to be able to regulate their emotions and demonstrate fewer problems than their less coherent counterparts. Further evidence for this lies in the association between parental ratings of these problems and story resolution, that is, the extent to which the focal dilemma embedded in the story stem is resolved

5.7 Limitations of the present study

The mainly correlational analyses of the present study may be limited in scope due to the number of participants involved. The results also highlighted some important consistencies but also inconsistencies and problems with the measures of social competence. The high number of inter-correlations between subscales and raters on the SDQ lends support to the validity of this measure. The high proportion of correlations with peer popularity argues for a link between these different perspectives on social competence.

The unpopularity scale was somewhat limited by the fact that several of the children refused to name others that they wouldn't like to play with, some stating instead that they 'got on with everybody'. This would have had the effect of distorting the correlation. Although this may have been true, it could also have been due to experimenter effects, with children not wishing to seem unpleasant in front of the experimenter by naming those they disliked. In the light of this putative unwillingness to name unpopular peers, the apparent contradiction of the negative correlation between peer **attribution** scores and teacher ratings of peer problems could be explained as children giving idealised representations of peers. In the case of the peer representation measure, this may also have been due to the limitations of the forced choice format or experimenter effects again.

Central in much of the research on parenting is the idea that parental warmth and parental control are orthogonal dimensions. This method is focused on the representations of the child and indicates that although conceptually distinct, Negative and Disciplinary representations may not be orthogonal, but seem to be independent. High negative scores usually co-occurred with high disciplinary scores, but not vice versa. Information about both aspects of the representation is therefore important. Further work could focus on the Disciplinary aspect of

the Story Stems, particularly in the light of the findings in previous studies in this thesis that this dimension has an association with teacher-rated problems with peers.

5.8 Summary of study and points for further research and discussion

The main positive findings of this third study were that teacher ratings of peer problems correlated with both peer **attribution** scores and incorrect mental state justifications on the ToM measure. Furthermore, the regression analysis highlighted that the number of incorrect mental state justifications was a significant predictor of peer problems. This finding highlights the important role of accurately conceptualising other's thoughts and is worthy of further discussion (in the next chapter).

It has been suggested that the use of internal state language and sensitive responsiveness on the part of caregivers facilitates the acquisition of mentalizing skills (Dunn, 1996). It would also be useful to investigate children's use of internal state language with and about their peers, or **teachers'** use of this language in the classroom for corroboration of this data. A small additional study, included in Appendix L was carried out in order to examine the different use of internal state language with respect to the child's different relationships.

In addition, Perner and colleagues (1994) demonstrated a relationship between family size and development of ToM, with children from larger families passing a false-belief task earlier than those from smaller families. This was interpreted in terms of the opportunities and incentives that the sibling environment provides. It would be useful to control for family size and birth order in future research. The influence of siblings on theory of mind performance was not upheld in the present study, which supports the previously cited evidence from Dunn (2004) and others (Lewis et al., 1996) which states that it is the *nature* of the interaction between children and significant others that is important in

influencing children's developing understanding of other's mental states, rather than the mere presence of a sibling. The peer environment may also play a role in developing ToM skills, or the relationship could be reciprocal, with good peer relations facilitating better perspective taking and vice versa.

As has been discussed, further refinement of the measures is necessary to confirm or corroborate the results found here. Measures of attachment in middle childhood such as the separation anxiety test do not usually differentiate between the subgroups of the insecure category, and so results relying on a composite of the groups may be misleading. Further reliability work between the MSSB and the insecure subgroups is necessary, to test whether it is sensitive to differences in representations. Longitudinal work on the influence of past and concurrent representations of attachment could further explore the possibility of the directive function of representations on social competence. Future work could examine intra-individual differences in mentalizing and attributions on social competence in different contexts.

In the next chapter the important and interesting findings from this thesis are discussed along with the clinical implications and suggestions for future research to arise from these.

CHAPTER 6 - GENERAL DISCUSSION, IMPLICATIONS AND FUTURE RESEARCH

6.0 Overview

The starting point for this thesis was an iteration of the importance of furthering our understanding of how children come to understand other relationships, other people, and how this is related to social development. Since first starting this thesis, the research into understanding of mind has seen major developments, and ToM research has focused much more on socio-emotional aspects of mindreading, and on individual differences. The research into understanding of minds has seen a convergence of several, previously distinct, fields, including attachment research and children's social competence (including relationships with peers). Within an attachment theory framework, for example, the idea that children's early relationships with their primary caregivers influence the internal working models or representations of relationships that children form is now fairly widely accepted. Elsewhere, ToM and mentalizing have been used interchangeably in some research studies and many in the field of mentalization now see these constructs as 'conceptual cousins' (Allen, 2006). ToM has been seen by many researchers as too narrow, with its false-belief paradigm, as it fails to encapsulate the relational and affect regulative aspects of interpreting behaviour in mental state terms (Carpendale & Chandler, 1996). Mentalizing has often been used as an alternative by developmentalists, because it is not limited to specific tasks or specific age groups. (Morton & Frith, 1995; O'Connor, Thomas & Hirsch, 1999). Other research traditions place the emphasis on parent practices in relation to children's mentalizing abilities. In contrast, other theories hold that children's capacity to represent and reflect upon mental states is innate, and not subject to any social experience influences. There have clearly been major developments within the fields of both

attachment-based research and the developmentalist's view of ToM since beginning the studies in the present thesis.

The burgeoning research from each of these perspectives over the past decade has furthered understanding of the relationship between early parenting experiences and mental-state understanding and social competence. This has been particularly interesting in the area of research that has studied the type of language used by mothers and the conversations within families and their links to children's ToM development (Dunn, 1996; Symons, 2004). Yet there are still many unanswered questions about the possible causal nature of some of these constructs, with a need for further research on the possible underlying mechanisms.

This thesis has examined the links between young children's developing ToM, attachment-related representations and an aspect of children's social competence related to the children's popularity amongst their peer group. The thesis focused on ToM and attachment theory accounts of children's social cognitions for several reasons. The first is that both of these models are concerned with how children understand others' behaviours, thoughts and feelings (Bretherton, 1990; Dunn, 1996; Fonagy & Target, 1997; Morton & Frith, 1995; von Klitzing, Kelsay, Emde, Robinson, & Schmitz, 2000). Second, both of these approaches predict that individual differences in social cognitive processes are important in children's psychological functioning, particularly in social competence and positive social relationships (Bosacki & Astington, 1999; Cassidy et al., 1996; Dunn, 1996; Lalonde & Chandler, 1995). Crucially, in examining the relationship between measures of ToM and attachment-related representations, the thesis has looked at the unique, and potentially overlapping, nature of these constructs for which there is still limited empirical research to date. (Humphress, O'Connor, Slaughter, Target, & Fonagy, 2002; Fonagy, Redfern, & Charman, 1997; Fonagy, Steele, Steele & Holder, 1997; Meins, Fernyhough, Russell, &

Clarke-Carter, 1998). The thesis examined these two constructs and their relationship to children's peer popularity and focused on children in early to middle childhood as there is still relatively little research on this age group with respect to their developing attachment representations. Findings from the individual studies will be considered in detail here, and general conclusions will be drawn from the overall thesis. There will also be a discussion of the limitations of the study, an examination of clinical implications, and unanswered questions, and suggestions made for future directions that studies might follow.

6.1 Main findings

Positive results from the three main studies will now be discussed in relation to the research aims, hypotheses and the existing research work in this field. Results of note from the three studies are summarised in Table 6.1 on the next page.

Table 6.1 Summary of Results

Study Number	Participants	Findings
Study 1	N=36	<p>Story organisation associated with composite ToM scores.</p> <p>Narrative coherence predicts peer acceptance independent of ToM and affective themes of the MSSB.</p> <p>ToM related to peer acceptance but not rejection.</p>
Study 2 baseline	N=80	<p>Narrative coherence associated with composite ToM scores, but not after controlling for verbal ability.</p> <p>Negative peer ratings associated with ToM.</p> <p>Disciplinary attachment representations associated with peer problems (T-SDQ) controlling for verbal ability.</p> <p>Positive attachment representations associated with prosocial behaviour on SDQ (parent) controlling for verbal ability.</p> <p>Story organisation associated with teacher rated SDQ prosocial scores.</p>
Study 2 follow on	N=56	<p>Disciplinary attachment representations associated with peer problems (T-SDQ) controlling for verbal ability. This relationship is also found between baseline and follow up.</p> <p>T-SDQ peer problems at baseline area also associated with disciplinary attachment representations at follow up.</p> <p>Negative peer ratings associated with ToM.</p> <p>ToM skills predict ToM skills one year later.</p> <p>ToM skills at baseline are associated with negative peer nominations at follow up.</p> <p>Increase in performance of ToM tasks over one year period</p>
Study 3	N=22	<p>Incorrect mental-state justifications associated with peer problems.</p>

6.1.2 Association between attachment-related representations and ToM

The results from the series of studies in this thesis found inconsistent evidence for the relationship between attachment-related representations and mentalizing (ToM) skills. The findings from Study 1 and Study 2 lend some support to the notion that ToM and attachment representation are related constructs. The first study using a small scale sample of 36 primary school-age children examined the relationship between measures of ToM and of attachment representations. Measures of peer popularity were based on peer nominations. The central finding in this first study was that there was a significant overlap between ToM and attachment theory models of social cognition that was not explained by verbal ability. Correlation and regression analyses indicated that, although both ToM and attachment indices were significantly associated with peer nominations of acceptance, the effects of the former appeared to be **influenced** by the latter. This raises the interesting question of whether or not the two constructs are overlapping or if there is any direct relationship between ToM and peer acceptance without the influence of attachment. As this is a modest study in the context of this thesis and previous work, it is only possible to draw tentative conclusions from the data under analysis. However, this first study, in confirming the relationship between ToM and attachment now established in several earlier studies (e.g., Fonagy et al, 1997; Fonagy, Steele et al., 1997; Meins et al., 1998) led on to the larger, longitudinal study which examined not only the stability of this relationship across time, but whether the finding was upheld for a larger sample, taking into account the important variable of language.

Study 2 (N=69), whilst finding an association between the two constructs, found a significant association between then narrative coherence dimension of the attachment-related story stems and aggregate ToM performance at baseline, but

not at follow up (N=56). This perhaps suggests that there are age-related changes in the association between children's early attachment-related representations and their later mentalizing skills. It is also suggestive of the greater impact as children get older, of other factors on their ability to understand mental states. Bi-variate correlations were rendered non-significant after controlling for verbal ability which confirms findings in studies such as that of Humfress et al (2002) who found in their association between attachment and ToM that this was partly **influenced** by verbal ability.

The suggestion that ToM and attachment representations are related constructs is also found in several prior studies of young children that used somewhat different methods from those used in this study (e.g., Fonagy et al., 1996; Fonagy et al., 1997; Meins et al., 1998). Therefore, some evidence is accumulating that an association between attachment and ToM exists, but questions remain about the meaning and origin of this association. The interesting finding in study 1 and study 2 is that the affective themes (positive, negative, disciplinary) in children's attachment narratives or representations were unrelated to ToM. This was the kind of connection found in the previous studies that assessed attachment and ToM in young children (e.g., Fonagy et al., 1997; Miens et al., 2002).

The data do not allow a test of alternative mechanisms for this association, although verbal ability can be ruled out in these studies as an **influencing** factor. It may be that the family and social relationship experiences that promote more secure attachment and more coherent models of attachment relationships also promote a general ability and willingness to understand others' minds. It is possible that the task of being coherent and organised in describing attachment-related events to an unfamiliar experimenter coincides with the ToM task, of being able to consider the thoughts and feelings of another in a story vignette. In

other words, children who score relatively highly on ToM may also be more likely to complete a story in a way that makes sense to an unknown experimenter, for example, by articulating sufficient details and context for actions in the story.

Possible explanations for these opposing findings from the three studies are now examined in the context of current theory and previous research.

6.1.3 Explanations for a positive association between attachment and ToM

There are several reasons why attachment security and ToM ability might be linked, including the fact that both have their origins in social interaction. Humfress et al., (2002) suggest that another reason why attachment and ToM may overlap is because they are “both part of the same or similar developmental process”. This is in keeping with Bowlby’s ideas on ‘goal-corrected’ partnership described in Chapter 1 of this thesis. As emphasised by Thomson and Raikes (2003) and later by Delius et al., (2008), the IWM of attachment is changing over time, and therefore a precise definition of attachment may prove very difficult. They proposed that conceptualizing the IWM of attachment as a “theory of attachment” may be helpful in defining what the components of attachment are. The development of such a “theory” will depend, on the one hand, on specific abilities, such as understanding of emotion or the cognitive ability of perspective-taking, and on the other hand, on knowledge about attachment as manifested in attachment-related representations (Delius et al., 2008). To get a complete picture of the “theory of attachment” it will be necessary to study additional components, such as changes in domain-specific social-cognitive abilities, for example, the ability for perspective-taking in social contexts (see Bovenschen, 2006). As Delius et al (2008) suggest, future studies

have to find out the overlap between the two domains of the “theory of attachment” and the “theory of mind”, as well as their specific contribution to the explanation of development, as both basic social-cognitive competencies and developmental changes indicated parallel processes of these two theories (of attachment and ToM).

Another reason for the overlap between these two constructs may lie in the role that attachment security plays in the individual’s developing capacity to understand, think about, and reflect on, the mental states of self and other (Fonagy & Target, 1997). Similarly, Gergely and Watson (1996), whose model of contingency is outlined in Chapter 1, argue the importance of the need for contingency between internal states and caregiver responses. This contingency is at the heart of mentalizing and therefore plays a key role in the development of an understanding of mental states. Where there is contingency there is secure attachment, and this sets the context for the identification of mental states in the self and other. Bowlby’s goal-corrected partnership would suggest a complete convergence between measures of mentalizing and attachment, at least from a certain age.

The degree of overlap between these two alternative models of social cognition has been examined elsewhere, for example in early adolescence (Humfress, O’Connor, Slaughter, Target & Fonagy, 2002). As in study 1 in the present thesis, Humfress et al., (2002) found a significant overlap between the mentalizing (using ToM measures) and attachment indices (using the Child Attachment Interview or CAI; Target, Fonagy, Shmueli-Goetz, 2003) of social cognition, which was not significantly **affected** by verbal ability. The findings with respect to the significant relationship between the MSSB and ToM in this thesis have potential for adding to the large body of theory and research which point to the role of parental sensitivity to the child’s internal states as

promoting the capacity of the child to be aware of, label, and understand thoughts and feelings of self and other.

6.1.4 The ‘coherence factor’

The tendency in research published to date is to examine affective themes (but not narrative coherence) in children’s attachment representations and narrative coherence (but not affective themes) in adult assessments. The implication is that different social cognitive processes are associated with attachment across development, but studies have yet to directly test this assumption.

The results from the study 1 indicated that story organisation was strongly and directly associated with peer acceptance but that the link between ToM and peer acceptance was indirect. For example, the correlation between story organisation and peer acceptance controlling for ToM was still moderate and statistically significant ($r = .41, p < .05$), and only slightly reduced from the bivariate correlation. In contrast, the correlation between *ToM* and peer acceptance controlling for Story organisation was substantially reduced from bivariate correlation and no longer statistically significant ($r = .17$). The meaning of this ‘narrative coherence’ factor has been the focus of several studies where the story stems of looked after children have been compared with a school aged group who were in their birth families (e.g., Greig et al., 2008; Minnis et al, 2006). Using a computerized version of the MSSB, these authors found significant differences between the groups in the coherence of children’s narratives, denial and avoidance in story play themes and in their use of intentionality. In their study the group of children in foster care showed significantly poorer narrative coherence. Given the disrupted attachments of this particular group of children in early childhood, this finding is suggestive of the importance of a secure attachment in forming a coherent narrative about this relationship.

Since beginning this thesis, the evidence has been growing for the importance of the coherence factor over content of the narrative (e.g., Sher-Censor and Oppenheim 2008). Studies such as these have demonstrated that the individual differences most pertinent for assessing attachment representations are revealed in the coherence of the narratives, although its relevance to the age group in the present thesis is still not fully understood. The authors have illustrated this critical distinction between coherence and content regarding the narratives of preschoolers by linking these assessments to the children's attachments to their mothers as measured when they were infants. This type of study adds robustness to the narrative coherence finding in making the link with the child's early attachment status. In a study using a very similar age-range to the present thesis, significant overlap was found between children's narratives on the MSSB, and maternal coherence on the AAI (Steele et al., 2003). Whilst this longitudinal study went into far greater detail in examining the specific types of parenting (e.g., looking at the authoritative parenting and limit setting), there is nevertheless a value to drawing out the importance of children's coherent narratives in the present thesis, particularly the association between this and children's mentalizing skills.

Research with adults has found that coherence is one of the most crucial indices of a secure attachment classification. This has been particularly highlighted through studies using the Adult Attachment Interview. Some of the interesting positive findings of the studies in this thesis suggest that it would be of value for future researchers to investigate the possible relationship between narrative coherence in childhood (as measured here by the MSSB or similar narrative measures such as MCAST), and coherence on the Adult Attachment Interview. This would permit further examination of the already established relationship (Steele, Hodges, Kaniuk, Hillman, & Henderson, 2003) between adult's coherent stories on the AAI and the security of their children, but using the narrative story

stems to look at relationships between the coherence of the two rather than just adult coherence and childhood attachment, thus extending the work of Steele et al., (2003). From Main's development of the Adult Attachment Interview, the focus in attachment research saw a shift to this factor of coherence. In the AAI, as previously cited, coherence was found to be related to infants' security of attachment with their mothers. The work on children's narratives had led to the proposal (see Koren-Karie, Oppenheim, Haimovich & Etzion-Carasso, 2003) that conversations and dialogues around emotional topics and themes between children and parents may provide an important setting in which the coherency is acquired. In dyads where parent-child conversations are characterized by open, direct, reciprocal, and structuring communication patterns, the child is likely to develop accessibility to a wide range of emotions with less need to rely on defensive exclusion and distortion of reality (Easterbrooks & Biringen, 2000). Because the encoding and interpretation of emotional events is likely to be coherent and organized, it may be expected that the child will also be able to talk about such events in a clear, open and coherent way. A future direction for this research would be a longitudinal study in which dialogues in childhood were examined against responses on the AAI, with the hypothesis that emotionally matched, coherent, organized dialogues in childhood are precursors for the autonomous, secure state of mind in the AAI.

Given the important role of story coherence in prior attachment studies where a narrative approach has been used (e.g. Main et al., 1985; Bretherton, Ridgeway, & Cassidy, 1990; Cassidy, 1988), Robinson et al (1992) developed a narrative coherence rating of the MSSB. In addition, they developed scales to assess aspects of the child's social interchanges with the interviewer, based on the view that the child's rapport with the interviewer might affect the content of his or her story completions. This, along with the development of scales to assess children's emotional expressions of joy, anger, concern, sadness and anxiety by the same Robinson et al., (1992) team, adds an important dimension to the

coding system and analysis of coherence that was not available in the present thesis. Similar developments on the coding of coherence have been made by Hill and Fonagy in the UK and Hoover in the United States. Hill, Hoover, & Taliaferro's (1999) scales have undergone extensive reliability testing and their coding also involves several performance scales which are designed to capture the child's transactions with the interviewer. Coherence emerges consistently as an

interesting and important factor within the 'performance' area of children's narratives.

6.1.5 Themes in the narrative

Not only is the coherence of the narrative important, but also other studies have focused on the narrative 'themes'. For example, a study by Moss, Bureau, Beliveau, Zdebik, and Lepine (2009) used the MSSB to examine associations between children's attachment behavior at early school-age, dimensions of narrative performance, and behavior problems as assessed in middle childhood. They found that children's narrative conflict themes significantly predicted both level of externalizing and total behavior problems. Results also indicated that secure children depicted fewer conflict themes in their narratives than did disorganized/controlling children, produced more discipline themes than avoidant children, and had higher coherence scores than ambivalent children. In the present thesis, themes were not analysed and therefore possible associations with problem behaviour was not assessed.

However, one question that must be raised in this final discussion concerns the clustering of the 'quality' dimensions of the MSSB into one dimension of narrative coherence. In doing so, it is possible that one reduces the scope for extrapolating interesting data from the individual narrative story stem quality dimensions (narrative coherence, key issue, bizarre/atypical, story resolution).

Perhaps they are all helping children to access different aspects of both their social understanding and their attachment relationships? Similarly, incoherence may not be a reflection of attachment status but may be more a function of maturation (e.g., verbal ability). How the particular dimensions of the MSSB and other similar narrative measures are distinct or related to one another and the individual dimensions' associations with other measures of behaviour, social competence and mentalizing are questions worthy of further investigation.

There is already some extremely interesting research into the maternal predictors of children's social cognition (e.g., Steele, Steele and Johansson, 2002) which concludes that there is a significant influence of maternal representations of attachment upon children's ability to attribute thoughts and feelings to others at age 11. Steele et al's (2002) study concludes that mother's attitudes about feelings and relationships are particularly important for their children's social cognitive capacities. They suggest that if a mother is not autonomous, organized and balanced in her thinking and feeling about relationships and emotion upon becoming a mother, she should be encouraged later on to get to this point, as the social cognitive skills of her child (ren) may benefit. Findings in the present thesis with respect to children's narrative coherence on the MSSB and the relationship to ToM skills could be an artefact of these particular children's own mother's style of thinking and feeling about relationships. Of course, without data from the mothers using a tool such as the AAI, this is only a hypothesis, but there is an interesting parallel relationship being drawn out from Study 1 and the baseline data in Study 2 in the present thesis with that found in studies such as Steele et al's (2002).

6.1.6 Explanation for a lack of association between attachment and ToM

The contradictory results with regard to the association between attachment and ToM in the present thesis, is found in at least one study (Symons & Clark, 2000) who found a relation concurrently at the age of five while failing to find one longitudinally from attachment at the age of two. One reason for these mixed results may be the intervening variables that help to account for the association between attachment and ToM. Meins has argued, for example, that this association is mediated by differences in maternal sensitivity to the infant's mental states that enables mothers to comment appropriately and insightfully about psychological experiences with the child (Meins et al., 2002).

Attachment security may not be predictive of ToM when intervening variables such as the quality of mother-child discourse related to mental states are considered, and this hypothesis was tested out in a study with preschoolers (Ontai & Thompson, 2008). Ontai & Thompson's (2008) study has helped to expand understanding of the influence of conversation and relationship quality in children's developing understanding of mental states. The results from their study suggest that maternal elaborative discourse is a stronger predictor of children's ToM understanding than explicit maternal references to the mind.

One difficulty with drawing the conclusion that there is a convergence between measures of mentalizing and attachment, is that it makes an assumption that although attachment behaviours are specific to one (or at most two, including father) individual, this translates into an understanding of mental states in *all* other people and in *all contexts*. Dunn et al (1996) have refuted this finding in their work and demonstrated that there are different degrees of mental state understanding demonstrated within different relationships and family and social contexts.

Another possible explanation for the lack of overlap between attachment-related representations and ToM found at follow up in Study 2, may be that this relationship is only significant in young children who are developing this skill of mental-state understanding and it is possible that by the time children reach school-age (as in the case of the sample in the present thesis) something else important has taken over which exerts a greater influence over their ability to mentalize, such as relationships with peers.

A further interesting conclusion drawn by Humfress et al (2002) concerns the content of the material in the measure of attachment. They offer an interesting explanation for the lack of relationship between the two constructs of attachment and mentalizing. In their study of adolescents they found that some had low scores on attachment coherence of the attachment interview, but good mentalizing skills on the vignettes of mentalizing. These individuals displayed a dismissing/avoidant style and one possible explanation could be that when they are faced with stress in the context of the attachment interview, they respond by detaching from the interview and interviewer and their narratives then become less coherent. This may explain why they are still able to mentalize in a non-personal context, but not in the context of talking about attachment figures. This fits with Dunn's (1996) earlier work highlighting the individual differences in mentalizing across different relationships and contexts.

6.2 Conceptual distinctions between attachment and ToM

Quite aside from the discrepancies and differential prediction underscored by these findings, it is important to highlight some of the conceptual distinctions between the two constructs. For example, whereas ToM implies a general trait-like capacity to understand an others' mind, attachment theory makes predictions about the quality and structure of children's social cognitions in relation to the

self and attachment relationships. To date, the implications of these distinctions for understanding individual differences in social cognitive processes and the relationship-specific or contextual nature of social cognitive processes have received little attention (O'Connor & Hirsch, 1999; Humfress et al., 2002). Further research is also needed to consider multiple and likely overlapping models of children's social cognition. Research that contrasts alternative models of social cognition within a multi-trait and multi-method assessment framework may identify important sources of overlap and distinctiveness that may then lead to conceptual clarity and clinical progress.

Another methodological explanation for the inconsistency of the findings across the three main studies concerns the coding scheme employed and the rationale for collapsing four of the story quality dimensions (KI, SR, NC and BA) into one dimension termed 'story organisation' in this thesis. The significant association found between story organisation and ToM may only be revealing something very general about the fact that there is a relationship between children's ability to mentalize and their ability to tell a story in a coherent, organized way. Conceptually of course one could argue that these things are one in the same, and this remains the puzzle of untangling these two constructs.

Mother's use of mental state terms and the causal role this plays in the development of children's understanding of false belief and emotions has been widely discussed in the research (e.g., Ruffman, Slade & Crowe, 2002). This approach, however, has been criticised as being too limiting by authors who state that learning about the mind is "not a naming game involving mapping a word to a private inner entity" (Turnbull, Carpendale & Racine, 2008). They argued that in order to learn about the mind children must understand human activity and learn how to talk about social interaction in psychological terms. They go on to argue therefore that parent-child conversations that help children learn how to talk for example about situations involving beliefs will help children more

fully understand aspects of mental life and should be beneficial in social cognitive development. Consistent with previous research they found that mothers' overall use of mental state terms was associated with their 3- to 5-year old children's performance on false belief tasks. However, when they took other aspects of talk into account, it was not overall mental state terms that predicted false belief but rather overall talk about important aspects of the story, namely those aspects of the story required for understanding the false-belief components and not the remainder of the aspects of the story, or the mental state terms used when these sections of the story were discussed.

6.2.1 The role of parenting in relation to attachment and ToM

A final consideration when examining the relationship between these two constructs is that research has moved away from a simplistic analysis of an association between attachment and ToM/mentalizing and the focus is more specifically on the quality of parenting, which *includes* attachment status. As Fonagy, Gergely & Target (2007) point out the quality of parenting appears to have a complex relationship with mentalization. As they report, some of the earlier studies pointed to the association between reflective parenting practices and precocious understanding of false belief (Ruffman, Perner & Parkin, 1999). Other studies, in line with this approach found other aspects of family interactions all to be strongly associated with the child's understanding of mental states, including the quality of parental control (Astington, 1996; Cutting & Dunn, 1999; Dunn, Brown, Somkowski et al., 1991; Ruffman et al., 1999; Vinden, 2001), parental discourse about emotions (Denham, Zoller, & Couchoud, 1994; Meins et al., 2002), the depth of parental discussion involving affect (Dunn, Brown & Beardsall, 1991) and parents' beliefs about parenting (Baumrind, 1991; Ruffman et al., 1999; Vinden, 2001). However, other studies have found that where parents were very severe in their discipline of children and exercised strictness, the children were found to be more advanced on ToM

tests (Hughes, Deater-Deckard, & Cutting, 1999). Another study (Pears & Moses, 2003) found that parenting that included spanking and yelling had the effect of delaying the acquisition of understanding false belief.

All of the above studies point to the complex relationship between attachment, parenting and ToM, and also to the need for studies to be designed to reflect this complex relationship. In addition, despite the significant body of evidence that points to the association between children's early secure attachment and advanced success on ToM tasks (e.g., de Rosnay & Harris, 2002, Fonagy et al., 1997; Fonagy & Target, 1997; Raikes & Thompson, 2006), not all studies have found this association. This inconsistency in the findings, which is reflected in the present thesis across the three first studies, suggests that the causal pathway from attachment to mentalization is unlikely to be direct. It is suggested instead that secure attachment and mentalization maybe have shared facilitating influence in aspects of parenting (Fonagy et al., 2007). Strong evidence for this alternative hypothesis comes from the work on maternal mind-mindedness which has been described in some depth in this thesis, and is returned to here in the discussion. The evidence from studies in this field is that where mothers use maternal mind-mindedness and reflective function in their interactions with, and in their descriptions of, their infants, this is associated with *both* secure attachment and mentalization (Fonagy & Target, 1997; Meins et al., 2003; Meins et al., 2002; Peterson & Slaughter, 2003; Sharp, Fonagy, & Goodyer, 2006; Slade, 2005).

6.3 Association between attachment-related representations and peer popularity

As set out in Chapter 1, children's own representations of the infant-mother dyad are thought to influence their subsequent relationships and interactions. In middle childhood, peer relationships are especially important and are associated with the intimacy and strong emotion that may elicit such an influence.

Considerable evidence supports a link between attachment and acceptance by and behaviour with peers (Booth-Laforce et al., 2006; Sroufe & Fleeson, 1986; Erikson, Sroufe & Egeland 1985). A study by Cassidy et al., (1996) focused specifically on the connection between attachment and peer-related representations. This thesis set out to test the association between attachment-related representations and popularity amongst the peer group, controlling for the effects of ToM and verbal ability.

The conclusions that are drawn from the association between positive, coherent attachment-related representations and popularity amongst the peer groups should be tentative. There are questions about the interpretation of peer popularity as a measure which reflects an aspect of social competence, and this is discussed further on in this chapter. Nevertheless, the findings elsewhere are reasonably robust, particularly from the field of fostering and adoption studies, where children who have experienced neglect and abuse in their early attachment relationships are at risk for poor psychosocial outcomes including problems with peer relationships (Hildyard & Wolfe, 2002). According to attachment theory, the proposed mechanism through which this can occur is through the internal representations of the self and relationships that emerge as a result of negative care experiences. As a result of the insensitive caregiving that is encountered, the self is considered unworthy and this in turn can lead to expectations regarding how others will respond. This in turn acts as a guide for behaviour in subsequent interpersonal relationships (Rogosch, Cicchetti, Shields and Toth, 1995; Manly, Kim, Rogosch and Cicchetti, 2001). The interesting gap, in the context of the series of studies in this thesis, is the role that ToM also plays in the child's developing expectations of how others will respond.

The results from two of the studies in this thesis do not replicate the many previous studies that have found connections between attachment security and peer acceptance and popularity. These types of studies conclude that children

who have trouble with their peers have problems in social-information processing and that these socio-cognitive “deficits” stem from their experiences with their parents. However, the null finding with respect to the hypothesised relationship between attachment-related representations and peer popularity in the latter studies of this thesis, suggests that there is something more complex at work than a direct correlation between parent-child attachment security and subsequent peer acceptance. It is interesting to note that whilst there was no significant association between attachment-related representations and peer popularity, there *was* a significant association between positive attachment-related representations and teachers’ ratings of children’s prosocial behaviour amongst the peer group. This finding highlights the important distinction that should be made between a measure of children’s ratings of how much they like and dislike children within their peer group, and independent measures of how children relate to one another within the peer group.

6.3.1 Positive association between attachment and peer popularity

In Study 1, the hypothesised link between social cognitive processes derived from attachment theory predicted peer social status and the effect was significant for both acceptance and rejection. This association implies a somewhat different social cognitive process and offers support for the theory that children’s positive representations of attachment figures may lead children to adopt more positive views of the self, others, and relationships. They may therefore approach others in a more positive manner and come to be viewed by others as positive, friendly, and engaging. This finding supports and extends research on children’s attachment narratives, which typically considered positive and negative themes in relation to prior behavioural assessments of attachment, current levels of behavioural/emotional problems, and clinical status (Bretherton, Ridgeway, & Cassidy, 1990; Buchsbaum, Toth, Clyman, Cichetti, & Emde, 1992; Oppenheim et al., 1997).

The attachment-related representations data from Study 1 suggest an additional or alternative social cognitive explanation for children's social status. Children who completed the attachment story stems in an organised and coherent manner, incorporated the story premise in their response and did not introduce irrelevant or bizarre material were also likely to be rated popular and were not likely to be rejected by peers in this study. There were no such significant associations for the Positive, Negative and Disciplinary themes. This finding therefore extends the limited previous research on young children's narrative coherence. Although narrative quality is assessed in studies of children's attachment-related narratives using the MSSB (von Klitzing, Kelsay, Emde, Robinson, & Schmitz, 2000) and alternative attachment assessments (Green et al., 2000), it has not been widely used. These data suggest that the coherence construct may be a developmentally important construct even in young children.

Still keeping the focus on the positive association found between these two constructs in Study 1, two further features of the story coherence findings are noteworthy. First, the relationship between peer acceptance and story organisation was independent of verbal ability. That is, although it may be tempting to attribute children's narrative organisation in the story stems to cognitive sophistication, this explanation cannot account for the findings obtained. Second, whereas organisation of the child's attachment narrative was strongly associated with ToM (controlling for verbal intelligence), the content (positive, negative, or discipline) of children's responses was not. It could therefore be suggested that, in this context, the findings provide both construct and discriminate validity of the story coherence measure.

A consideration in Study 1 concerns the methodology involved. The association between independent raters' assessment of children's narrative coherence when completing attachment story stems and peers' nominations of most and least

liked classmates is not likely to be an artefact of how the data were collected; that is, this finding is not easily explained by rater bias or some other methodological factor. However, given that this finding was not replicated in the longitudinal study, further research is needed before stronger claims can be made about the meaning and attachment relevance of young children's coherence in narrative assessments. In particular, the data do not allow an inference to be made if problems in narrative coherence are specifically observed in the context of talking about attachment or if the problems index a general social cognitive difficulty that was not captured by verbal ability or ToM. Furthermore, it is not suggested that the meaning of narrative coherence is comparable in young children and adults as this has not been tested here, although evidence from elsewhere attests to an association (e.g., Steele et al., 2003). Nevertheless, the data from Study 1 do suggest that narrative organisation may have implications for social adjustment and may be worthy of further investigation. The findings also point to a yet unresolved question about narrative organisation, namely, at what age is children's narrative coherence associated with attachment quality, and what are the implications for children's social competence more generally? The indicators of social competence used in this thesis were peer popularity and teacher rating of behaviour (as measured by the SDQ). There are other, perhaps better, indices of social competence, some of which are highlighted here in the discussion.

The findings from Study 1 support the work of authors who all found significant differences in children's ability to get along with their peers depending on their attachment classifications (Pastor, 1981; Dodge, 1983, Erikson et al., 1985; LaFreniere & Sroufe 1985; Jacobson & Willie 1986; Cohn 1990 and Fagot, 1997). However, many of these studies relied predominantly on teacher report and Cohn (1990) found that although peer nominations for aggressive behaviour backed the proposed relationship, peer nominations for prosocial behaviours were not associated with attachment. What, then, are the possible alternative

explanations for this lack of relationship between attachment representations and peer popularity?

6.3.2 Explanation for a lack of straightforward association between attachment and peer popularity

The lack of support for the straightforward link between attachment security and peer acceptance/rejection lies partly in the unspecified nature of internal working models. As set out in Chapter 1, we are far from understanding what properties such cognitive representations are likely to possess at various ages. The idea of internal working models does not appear to give us a precise understanding of a proposed relationship between early mother-infant attachment security and the child's later relationships. Increasing evidence has been gathering since Dunn's early work demonstrating that children use their powers of social understanding very differently in different relationships. Crucially, Dunn (1993) pointed out that the social understanding that children show within a relationship, such as with a friend or sibling, depends on *both* partners not simply on the socio-cognitive skills of one partner. Taking these points together then, the question of the relationship between children's attachment-related representations, ToM and acceptance amongst their peers could be more fully addressed with a detailed examination of the interaction between children and their friends, including many of the variables discussed above (pretend play, conflict resolution strategies etc.).

6.3.3 The complex nature of children's relationships with peers

It is likely that the world of children's friendships is more complex than typically portrayed in the peer relationships literature. For instance, during a single academic year, some children may consistently be involved in a mutual best friendship, albeit with different peers. That is, the child may have a mutual best friendship with one child during one term and a mutual best friendship with a different child later on in the academic year. In this case, best friend *involvement* remains stable, although the identity of the best friend changes over time. The consideration of such a best friendship pattern raises a number of important questions, such as: How might the adjustment of children with stable best friendships with the *same* peer compare to that of children who have best friendships with *different* peers? Are the benefits of consistent best friendship involvement as great when the peer differs?

6.3.4 The importance of studying friendship

Perhaps the lack of evidence in the two subsequent studies in the present thesis can be explained by the fact that the link is not between attachment security and peer popularity, but rather with the more complex construct of social-cognition; friendship.

As the present thesis has highlighted, children's relationships with their peers amount to much more than levels of popularity and unpopularity. The nature and quality of friendships is important if associations between early attachment relationships and children's later social competence, including their use of mentalizing, are to be fully understood.

There are many dimensions of children's friendships that are worthy of much more in-depth analysis. For example, friendship stability has been linked to friendship quality, both theoretically and empirically. It has been argued that the

stability of friendships derives from the positive qualities of and the positive interactions between children (Berndt, 2004). In other words, friendships that are high in relationship quality will be more likely to persist over time.

A review highlighted factors that were linked to children's interactions with peers; children's temperament, childcare experience and attachment to caregivers in childcare, mother's depression, attitude to parenting, parenting practices, psychosocial adjustment and observed warmth and emotional expressiveness with their children (Schneider et al., 2001). Attachment emerged as predictive of different aspects of children's interactions with peers, namely sharing and pro-social behaviour. From this comprehensive meta-analysis therefore, it should be concluded that there is insufficient evidence for a straightforward, and especially causal, link between attachment and peer popularity.

With respect to studies on friendships, although fewer studies in Schneider et al.'s (2001) meta-analysis had focused on this, the evidence for the association between secure mother-child attachment and quality of friendship was strong. A finding of relevance to this thesis is that the links between attachment quality and friendship increased with the children's age. This may go part way to explaining the lack of relationship between attachment and peer popularity in study 2 at baseline, and importantly at follow-up where older children were involved, as friendships take over from mere popularity the older the child gets. The reasons behind this, according to Schneider et al., (2001) are that the bonds and relationship interactions of family life are more similar to the trust and intimacy of close friendships than to the skills involved in negotiating relations with a group of peers. Intimacy, loyalty and commitment which increasingly become key features of friendships as children grow up are exactly those features one would expect to be associated with the quality of attachment relationship between parent and child.

Despite this body of evidence for the relationship between early attachment relationships and later friendships, even this strong link is nevertheless complex, and certainly not a straightforward matter of early secure attachments leading to later successful relationships in every domain. The more realistic picture is that it appears that *some* aspects of parent-child relationships have connections over time with *some* features of children's friendships. For example, a study by Simpkins and Parke (2001) found that the quality of the parents' own friendships was related to those of their children. Gender was an important factor also, with girls' friendships more clearly related to their parents' friendships than those of boys. Interestingly, the positive features of girls' friendships (resolution of conflict for example) were related to the positive qualities of their fathers' friendships, while the conflict in the girls' friendships was related to the quality of their mothers' friendships.

Findings from studies on marital quality and friendships are particularly meaningful in the light of recent suggestions that to understand the development of children's social relationships with peers, studies need to move beyond the mother-child dyad to a broader focus on the family system (Lewis, 2005; Thompson, 2005). Findings suggest that the influence of families on children's functioning with peers extends beyond the direct affect of the mother-child attachment relationship, and indeed, that another aspect of the family system- the quality of the parent-parent relationship- has a direct link with friendship quality that is equally as important to that of attachment security. This suggests that attachment is not the only or even the primary mechanism for promoting children's friendships and that the mother-child arena is not the most significant venue for learning social skills (Lucas-Thompson & Clarke-Stewart, 2007).

Despite the large body of evidence from previous studies, it is also possible that there is no direct relationship between the constructs, and the notable link with

peer popularity is in fact **influenced** by some other factor, such as social skills learned in the family of origin (Coie & Kupersmidt, 1983; Dodge, 1983), rather than attachment itself. Hubbs-Tait et al., (1994) found no connection between attachment status and maternal reports of children's social skills and friendship/successful peer relations. In an older set of children, Lieberman, Doyle & Markiewicz (1999) found that children's reports of positive friendship qualities and lack of conflict within their best friendships were related to attachment, whereas the presence of a reciprocated friendship and popularity were not. These findings support the view that generalisation of attachment representations is restricted primarily to the formation of close peer relationships (Bowlby, 1982; Youngblade & Belsky, 1992), rather than general acceptance or popularity, and may explain the lack of association seen here in two of the studies.

However, despite all of these arguments, it is interesting to note that when examining the associations between attachment-related representations and prosocial behaviour amongst the peer group (rated by teachers), there *is* a significant association. This suggests an interesting difference between children's ratings of individual children within the peer group, and their interactions within the peer group as a whole. In other words, whilst attachment-related representations are not influencing how popular children are within their group in this study, they may be having an influence on how socially competent the children are seen as being within their peer group.

With respect to children's temperament, which was raised in Chapter 1 in terms of it's possible association with children's peer interactions, although the findings are equivocal with respect to the role of this variable, some studies have found a pattern of significantly stronger associations between dimensions of temperament and social functioning in younger children (under age 11) compared with older children (Serry et al., 2010).

6.3.5 Association between ToM and peer acceptance and rejection

The literature is equivocal on the relationship between deficits in ToM and children's functioning within their peer group. Some of the literature points to the relationship highlighted in the present thesis between ToM performance and negative peer rankings and the relationship to bullying. Others have found that well-developed skills in mentalizing influence the ability to form friendships, by being able to talk things through with friends, see that others have different perspectives, and this can result in higher levels of conflict (Cutting & Dunn, 1999).

6.3.6 Links between ToM and peer acceptance

In Study 1, extending previous research that examines the social consequences of individual differences in social understanding and understanding of mind (Dunn, 1996), individual differences in ToM were significantly associated with peer acceptance; the connection with peer rejection was not significant. It was hypothesized that children who show a more developed ability to understand others' minds and adopt the affective and cognitive perspectives of others were seen by their peers as more prosocial, friendly, engaging and socially skilled. Results showed they are nominated as being popular and "most liked".

Theoretical links between mentalizing skills and social competence have been made that point to both the children with well-developed mentalizing being more socially competent and popular, but also to them being the unpopular bullies in the peer group (Sutton, 2003). Both of these opposing theories found support in the three studies in the present thesis.

6.3.7 Association between ToM and peer rejection

Although unexpected (Cassidy & Shaver, 1999), the association noted between ToM ability and negative peer rankings backs the findings of Happé & Frith (1996) who suggest that a child may use their ToM skills for deception and manipulation of their peers. Whilst a causal relationship cannot be inferred from the findings in the present thesis it is possible to hypothesise that ToM may therefore be linked with antisocial behaviour and consequent peer unpopularity. The association between ToM and negative peer rankings was found in Study 2 at both baseline and follow-on. These findings are important, both for understanding how children might ‘use’ their well-developed mentalizing skills, and for planning clinical interventions which focus on the appropriate and inappropriate use of mentalizing. These results support the literature (Gini, 2006), where ToM skills were found to be positively associated with defending behaviour among both boys and girls. The findings may also lend support to the research of Sutton et al., (1999) and more recently by Caravati et al., (2010) who found ToM to be a reliable predictor of bullying. This finding also supports the work of Cutting and Dunn (2002) and others who examined the ability of children with advanced ToM skills to manipulate other’s behaviour. Cutting and Dunn (2002) found that children who performed well on ToM over 2 years were more aware of others not liking them and more alerted to criticism, particularly criticism from teachers.

If advanced ToM skills are associated with bullying, this raises another question – are children with poorly developed ToM skills the victims of bullying? (Andreou, 2009 Unpublished Thesis). There is certainly good anecdotal clinical evidence which points to an association between being the victim of bullying and poor mentalizing skills if one looks at the referrals to CAMHS services of children on the autistic spectrum, and this association is worthy of further empirical investigation.

Further work which looks specifically at the characteristics of this group of children who are rated as 'least liked' amongst their peer groups might reveal whether this is a group of children who are more likely to be involved in the bullying of others, and what other characteristics identify this group of children, including temperament, attractiveness, intelligence, etc.

6.4 Association between attachment-related representations and parent and teacher-rated behaviour

Two findings stand out with regard to the association between attachment-related representations and parent and teacher-rated behaviour. One finding from Study 2, both at baseline and follow up, concerns the association between disciplinary attachment-related representations and teacher ratings of children's problems with peers. The other is the significant association between children's positive attachment-related representations and teacher ratings of prosocial behaviour. The relationship between children's narratives with respect to attachment relationships and behaviour in childhood is an extremely interesting one, which has been the subject of some investigation elsewhere (e.g., Futh et al., 2008 using the MCAST) and results from this thesis lend some relevant support to this growing body of research. The findings in the present thesis support those of Futh et al., (2008) in finding links between attachment-related representations and teacher- and parent-reported behaviour problems. Stability for these associations was found both within and across the two time points in Study 2. Futh et al., (2008) found links between non symptom scales, peer problems and prosocial behaviour and attachment scales. There was the same tendency in both Futh et al's (2008) research and the present study for a somewhat stronger relationship for the teacher-rated problems than parent rated. Whereas in Futh et al's (2008) study, disorganization was the only attachment narrative factor that significantly predicted teacher-rated problems, independent

of the other attachment narrative factors, in the present thesis, it was the disciplinary factor that was important.

Evidence has been accumulating elsewhere for the association between children's parental representations and their subsequent behaviour. Stadelmann, Perren, von Wyl, & von Klitzing (2007) found that children's representations at 5 predicted conduct problems and pro-social behaviour one year later. Indeed, children's parental representations turned out to be more predictive of their later symptoms and strengths than the parent-reported family environment. With relevance to the present thesis, children's negative representations of parental figures were more predictive of conduct problems than parent-reported family conflicts.

Findings in the present thesis for the association between disciplinary representations and peer problems are at odds with the research by Oppenheim et al., (1997b) who found that 4-5-year olds' negative maternal representations were positively associated with behavioural problems reported by mothers, but disciplinary representations were associated with less externalising behaviour problems. Interestingly, in their study, negative parental representations were found to be less important for hyperactivity/inattention than for conduct problems. There is something important then in the association between children's negative representations of their attachment figures and their subsequent behaviour (negative) with others, that manifests itself not as a problem of inattention or mood disorder, but rather in behavioural disturbance, particularly in relating to others. This finding in the present thesis is worthy of further investigation, and raises a question about what the meaning is of the disciplinary representations dimension on the MSSB and why specifically this is associated with aspects of how children relate to their peers. Further analysis of the coding of children's transcripts in Study 2 demonstrated significantly higher scores for representations with respect to conflict and confrontation than scores

for the positive use of discipline and prohibition, usually associated with those children with fewer externalising problems. Attachment theory has provided a useful framework for understanding how early parent-child relationships support or undermine children's relationships beyond the family, as has been repeatedly stated in Chapter 1 of this thesis. Despite this theoretical framework, there are still relatively few empirical studies linking middle-childhood attachment security and peer-group functioning (Booth-LaForce et al., 2006).

It is hypothesised therefore, that conflict and confrontation in the relationship between children and mothers plays an important role in children's later functioning within the peer group, and it is suggested that a study which examined the possible causal association between a different aspect of disciplinary parenting, i.e., conflict and confrontation, and behaviour in the peer group, would be valuable in furthering understanding of the influences on children's relationships outside of the family, and their social competence more generally.

Results from other studies which have empirically tested Bowlby's (1969/1982) conceptualization of the role of the attachment relationship in the development and manifestation of behavioural problems (e.g., Madigan et al., 2007) suggest that disorganized attachment serves as a mediator between disrupted behaviour and maternal reports of toddler externalising problems. Bowlby's (1969/1982) original hypotheses, as well as more recent formulations, suggest that caregivers' unresolved attachment representation may limit accurate perceptions of their children's current states and thus restrict their ability to respond to their children objectively, consistently and effectively (e.g., Lyons-Ruth et al., 1999; Scheungal et al, 1999). Caregivers may be too consumed with thoughts and emotions of their own earlier painful vulnerabilities and so their child is left without an adequate model for regulating their mental, emotional or behaviour states (Lyons-Ruth & Block, 1996). This line of argument does not necessarily explain the association found in this thesis between disciplinary attachment-

related representations and subsequent problems with peers (rated by teachers on the SDQ), but it provides a useful framework for extending this research and provides a model of the possible effects of attachment representations and maternal behaviour on behaviour problems.

Before further predictive studies from childhood are conducted, more needs to be known still about how attachment relationships are related to children's thoughts and feelings about themselves and their interactions with social partners within those relationships (Clark & Symons, 2009). This line of enquiry leads directly back to Bowlby's (1969/82) original work, which proposes that children develop representations of attachment figures and themselves through parent-child social interactions. In infancy the balance of exploration and proximity seeking is associated with attachment styles, however, as language and higher-order thought processes develop in childhood (e.g., Symons, 2004), these attachment styles become encapsulated in cognitive representations of how people behave within social relationships. Bowlby suggested that cognitive representations can be equated to a set of social expectations that have a powerful influence on beliefs and feelings about the self.

As outlined at the start of this thesis in describing attachment and its relationship to later behaviour, when needs are met either inconsistently or in an angry fashion by parents, children may come to believe they are not worthy of care. When needs are met consistently, children come to expect they are worthy of care and they can count on others in times of need, which is an element of secure attachment. There is therefore a theoretical basis by which interactions between children and attachment figures serve as a basis for cognitive representations (i.e., working models) of the self (Bowlby, 1969/82). Research has shown that a secure attachment style predicts more positive feelings about the self (e.g., Clark & Symons, 2000) which can promote positive interpersonal relationships in later life (Easterbrooks & Ableles, 2000; Fordham & Stevenson-

Hinde, 1999; Hinde et al., 2001). The results from the present thesis therefore leave a question remaining as to the impact of the disciplinary/authoritative element of parenting, and children's subsequent social relationships, particularly amongst their peers.

6.5 Association between incorrect mental-state justifications and peer problems

One positive finding of interest and significance emerged from Study 3 (N=22) which examined peer representations in addition to peer nominations.

There was a significant association found between the number of incorrect mental-state justifications made and teacher reports of peer problems. Teacher ratings of peer problems also correlated with peer representations. Despite the relatively small sample size used in Study 3, the results nevertheless highlight the relevance of understanding the thoughts of other people, although it is interesting that this finding is at odds with the finding in Study 2 which found an association between negative peer rankings and theory of mind skills. It would appear that there is a complex relationship between the ability to read the intentions of others and how this skill is then used. Study 3 indicates that poor mentalizing may lead to impairments in functioning within the peer group, and study 2 points to good mentalizing skills leading to unpopularity in the peer group. The difference here between unpopularity and poor functioning in the peer group are not fully understood, but certainly worthy of further investigation.

6.6 Developmental changes in ToM: importance of language ability

Results from study 2, at baseline and follow-on, support the evidence that ToM skills increase with age, and also that performance on the ToM tasks is significantly associated with verbal ability and age. A meta-analysis of the relation between language ability and false-belief understanding (Milligan, Astington, & Dack (2007) found strong support across 104 studies for the

relationship between false-belief understanding and language ability. This meta-analysis also supports the presence of a consistent developmental progression in children's false-belief understanding that is evident across various tasks (Wellman, Cross, & Watson, 2001). Studies in the present thesis, although confirming the established link between the socio-cognitive variable of attachment-related representations and ToM, and the association between ToM and peer relationships to an extent, still conclude that language emerges as an important correlate.

Language in itself can be studied and operationalized in many different ways of course, and it has only been measured in one particular way in the present thesis, and that is according to children's general and receptive language ability. As Astington and Baird (2005) point out, however, language is a complex multifaceted system that is used for social communication and for individual mental representation, and can be assessed in many different ways. These include measuring language not as an individual process but a joint action among participants. As Dunn and Brophy (2005) argue, the discourse measures of language emerge from a conversation between two people, the content and quality of which depends in part on the nature of the relationship between the two. These measures, therefore, are not simply looking at characteristics of an individual child. Therefore, whilst the present studies take account of the influence of language as an important variable in the analysis of the relationship between the constructs under investigation, they also highlight the need for consideration of the role that conversation might play in the development of mental-state understanding.

Although there are undoubtedly difficulties and disadvantages to studying children in a naturalistic setting, it is certainly true that *in addition* to standardized assessments of mind and emotion and language, studies of children in real-life situations are extremely illuminating in terms of the emotional

significance that different situations have for a child. In studying children in a variety of social situations or relations we can establish how these different dynamics, social contexts and differing levels of familiarity in relationships, influence the development of understanding other minds and use of mental state terms in different contexts.

6.6.1 Improvement in ToM skills with increasing age

Findings from the longitudinal data in Study 2 demonstrated that, as expected, children's performance on ToM tasks improved over time. In addition ToM performance at baseline in Study 2 was highly predictive of the aggregate scores for ToM performance at follow up at time 2. When the story organisation dimension of the MacArthur story stems in Study 2 was added as a third possible predictor of ToM performance at follow up (a year later), it did not make a significant contribution to the variance. Therefore, children's descriptions of their attachment representations, particularly with reference to the coherence of these stories, are not making any significant contribution to their later performance on ToM tasks. This suggests that there may be is nothing *developmentally* significant about emerging attachment representations' impact on ToM skills over time. However, it is not known whether some of these children developed or improved on their ToM skills at an earlier point than at the data collection at follow up in Study 2. It is possible that more discrete variations in children's ability on these tasks of understanding false beliefs and emotion understanding have been missed in this method.

There was a significant improvement in both children's false belief understanding and emotion understanding and the individual differences in these changes is mostly explained by children's verbal ability. Bivariate correlations between ToM variables and attachment representations are significant and

consistent across time, but partial correlations controlling for verbal ability rule out the significance of this relationship.

What are the implications of these findings in relation to the theoretical issues raised in the introduction to this thesis? With reference to the developmental changes in when and why children talk about mental states, analyses took account of children's attachment representations and relationships with older siblings in the family as possible influences on children's developing ToM. In contrast to Perner, Ruffman and Leekam's (1994) finding that children from large families passed ToM tasks at an earlier age when compared with children from smaller families or ones where there were no siblings, no such relationship was found in this study.

Consistent with Astington and Baird's (2005) work, the results attest to the importance of language, or verbal ability as measured in this study, to ToM development, and particularly to the stability of individual differences developmentally. In study 1 attachment representations are associated with peer popularity (both acceptance and rejection) even when accounting for verbal ability, but in the longitudinal study these association between the measure of attachment and ToM are only found at baseline and in correlations at both time points, and not once verbal ability has been controlled for. In terms of the measures employed in this thesis, at time 2 in Study 2 at least, language ability appears to be the most significant factor in terms of the development of mentalizing as children get older, as measured by performance on ToM tasks. The constraints of this thesis did not allow for an observation of parent-child discourse. This might have given a greater insight into some of the mechanisms underlying the individual differences in children's ToM skills. It has been suggested that the use of internal state language and sensitive responsiveness on the part of caregivers facilitates the acquisition of mentalizing skills (Dunn, 1996). It would be useful to investigate children's use of internal state language

with and about their peers, or teacher's use of this language in the classroom for corroboration of this data.

6.6.2 Role of verbal ability in other areas of social cognition

As verbal ability emerged as an important variable in terms of its association not just with the cognitive tasks on the ToM tasks, but also in its relationship with both attachment-related narratives, and peer popularity, it is important that the role of language in the context of social cognition in childhood is better understood.

Recent research suggests that children's linguistic competence may play a central role in establishing social acceptance (Gertner, Rice & Hadley, 2010). The possible relationship between these domains was evaluated by examining children's positive peer relationships in a preschool classroom attended by children with varying degrees of verbal ability. Three groups of children were compared: children with normally developing language skills, children with speech and/or language impairments, and children learning English as a second language. A similar measure of peer popularity was used to the one described in this thesis, producing positive and negative nominations. The results showed that children with normally developing language skills received more positive nominations than children in either of the other two groups. This group of children also predominated in the liked group when the children's positive and negative nominations were combined to classify them as liked, disliked, low impact or mixed. The other two groups of children fell into the disliked or low impact groups.

An association between children's temperament and their language development has been explored (Salley & Dixon, 2007) and specific temperamental

dimensions such as attention span and positive emotionality have been linked to both productive and receptive language (Dixon & Smith, 2000; Karrass, 2002). Although it has not been possible to draw conclusions with respect to the directions of effect, due to the correlational nature of these studies, the general finding has been that children with aspects of temperamental easiness (i.e., affective positivity, long attention span) tend to be relatively linguistically advanced. In terms of a direct route of influence, children's difficult temperaments might limit the extent to which they can process linguistically relevant information during language acquisition events. An alternative suggestion is that some aspects of children's temperament might indirectly contribute to language by influencing the formation of the social relationships that are relevant for language acquisition. That is, the kind and duration of interpersonal exchanges entered into by temperamentally difficult children may be different than those that easygoing children enter into. These interpersonal relationships may have differential consequences for language acquisition (Rieser-Danner, 2003). Furthermore, the temperament-language relationship was shown to be more important than the role of joint-attention in language development (Salley & Dixon, 2007).

The results from the two major studies in this thesis attest to the important role of language abilities in children's developing skills of mind-reading (Fisher, 2002). Clearly, there is still so much to explore, and as set out in Chapter 1 there is further research needed in understanding how significant young children's talk about emotional experiences is once they are beyond the age of 5 (Dunn & Brophy, 2005). What we do know is that the types of conversations that children have with significant others, and the emotional content of these conversations, play a role in understanding of other minds (Dunn and Brophy, 2005; Dunn et al., 1991). The studies in this thesis did not examine the conversations that children have within families and therefore the positive association found between language ability and ToM across the studies raises

questions about what aspect of language ability is important and how different conversations about feelings, specifically with mother, influence understanding of mind and emotion.

6.7 Limitations of the present thesis

Limitations of the individual studies have already been outlined in previous chapters and therefore the following section will pull together what are considered to be the most important of these for further consideration.

6.7.1 Measurement of attachment

An important focus of a critique of this thesis must rest on the issue of measurement; both in the use of specific measures and associated coding scheme. It is noteworthy that in the past decade there has been a much greater focus on developing methods for assessing children's attachment narratives, some of which has developed in the time since the methodology for the present thesis was devised.

Since beginning this thesis, other attachment measures have been developed within the field, perhaps most significant for this study is the Child Attachment Interview (Target, Fonagy, & Shmueli-Goetz, 2003)). This is a 19 question, semi-structured interview that assesses children's mental representations of attachment figures and significant others. The interview includes questions about children's experiences with, and perceptions of, their caregivers, especially situations in which the attachment system is presumed to be activated (emotional upset, illness, injury, separation). It is based on the Adult Attachment Interview (Main, Kaplan & Cassidy, 1985) and like it's adult equivalent, it assesses the affective nature of the relationship described, and also the quality (e.g.,

coherence) of the child's response. For this thesis, this measure would have had the advantage of looking at a measure of coherence more approximate to coherence in adult attachment measures. However, at the time of devising this thesis, further research was needed to strengthen the construct validity of this measure. Although it would still not be able to capture the younger children under study in this thesis, it is certainly a useful measure for future research looking at the relationship between children's attachment representations and other skills of social cognition, such as mentalizing. Despite the possible advantages of using this alternative measure, the coding schemes of the MSSB have developed significantly, and new evidence of the construct validity of this measure has been presented. Furthermore, exciting developments in the field of attachment research have found associations between the MSSB and the AAI which suggest that attachment-related narratives may be giving a greater insight into children's attachment status' than was previously thought (Steele et al., 2003)

During the coding process in the studies, certain problems emerged, particularly with the first of the coding systems. The story stems purport to tap attachment relationships with the primary attachment figure, but the coders are asked to rate representations of interactions with other characters. For example, in the 'Three's a crowd' story, a positive representation is coded as present if the older child comes to the aid of the younger child, an interaction that does not involve any attachment figures. It could be argued that as attachment IWMs function as an organising principle for self as well as the attachment figure this is justified, but the correspondence does not seem absolutely clear. It is known that attachment to mother is not necessarily related to that of father (Belsky & Rovine, 1987). Most of the coding discrepancies were based around ambiguity based on these issues. The issue of intra-individual differences in attachment-related representations leads to questions of generalisability of these representations. It would be useful to assess representations of mothers and

fathers separately to examine any differences in influence of the two types on peer representations or social competence.

Traditional child attachment measures are usually centred on the experience of separation and reunion, which is thought to elicit feelings related to security in the individual. The story stems are mainly rooted in conflict scenarios, which may produce rather different representations from the individual. The MSSB certainly seemed to be eliciting representations of some sort, with several of the children even using 'I' instead of the name of Child 1 at times. This implies that some participants did identify with the older child, but for others, this is uncertain as many of them were not older children themselves. The fact that a composite score is taken for representations of adult figures by child figures may be a limitation of the measure. Oppenheim, Emde & Warren (1997) did find a correspondence between children's representations of mothers and maternal self-reports of overall qualities of parenting, without going so far as to say that the representations accurately depicted maternal behaviour.

Nevertheless, the MSSB and other story-stem doll play measures have a major advantage of being engaging and mostly fun for children, and the wide body of accumulating research which has used these techniques have produced some interesting findings with respect to the attachment-relationship related themes of children's narratives. However, even with developments in both content and coding of measures such as the MSSB, these measures are not without their limitations. Although each story contains cues, the saliency of one cue over another is not clear. Another issue is that it is unclear whether the individual dimensions are in fact tapping into different aspects of the child's attachment representation, or if they are so highly correlated with one another as to be measuring the same thing. This issue makes it difficult to know whether positive correlations between dimensions and other measures are meaningful.

One general methodological conclusion from reviewing the three studies in this thesis is that it is important to move away from general notions such as the ‘internal working model’ of the attachment relationship. Thompson (2008) and others have helpfully critiqued this type of model as too simplistic and much more open to developmental change than was previously assumed. It is more helpful therefore, to follow the research of authors such as Meins et al., (2008) who have tried to specify more clearly the nature of what is thought to be represented in such models, whilst still maintaining the important link with early attachment status. The associations found between early attachment quality and later mind-reading abilities and the questions raised about what mechanisms underlie these associations, are all exciting questions that have only so-far been partly addressed in the literature. The proposed associations raise even more interesting questions about how these associations link to psychopathology in childhood and adolescence, and help clinicians plan more appropriate treatment interventions.

6.7.2 Measurement of ToM

Another key issue relating to measurement is that of using a range of ToM tasks for the different ages participating in the study. There are different instructions for the Happé cartoons and stories compared with the more basic instructions of the false-belief and emotion understanding tasks, and the variations across measures and the criteria for passing may have an influence on the subsequent associations, or lack of, with other measures. Some of this discordance in associations between the variables between baseline and follow up in Study 2 over a year may be related to different methods rather than to actual differences in how children perform with respect to tests of mentalizing. Ideally, a more naturalistic examination of children’s use of mental state language and their mentalizing skills in relation to their key attachment figure would provide a richer source of data for analysis of individual differences in children. Further

research on generalized versus relationship or context-specific mentalizing is clearly needed.

The very term ‘ToM’ has become synonymous with success on a set of tasks designed to test children’s understanding of mistaken (i.e., false) belief (Baron-Cohen, Leslie & Frith, 1985; Wimmer and Perner, 1983). The consequences of this operational definition were a research focus on the 3-4 year olds – as it is at this age period that most children begin to succeed on the standard false-belief tasks; and an emphasis on belief and knowledge states rather than intentions, perceptions, emotions and desires. Hughes (in Astington and Baird 2005) points out the contrast between 3-year-olds’ failure on false-belief tasks and their success in negotiating everyday social interactions. Thus the differences found in children’s ToM skills in this thesis may not be necessarily related to differences in their social competence. Individual differences in false belief performance appear to be associated with diverse socially relevant domains.

It could be argued that, given the repeat measures administered over the longitudinal study, participants simply got ‘better’ at the ToM tasks because they were familiar with them. However, the time lapse of one year between administering measures should have been long enough to ensure that the majority of participants would not remember all the details of each task. Furthermore, other studies have shown that there are individual differences using the same ToM tests. There are clearly limitations to using single measures of ToM and of Emotional Understanding, and hence a range of ToM and emotional understanding tasks were used, and aggregate as well as measure specific analyses were carried out in the data analyses.

6.7.3 Measurement of peer popularity

While peers provide a rich source of information, the use of peer popularity as an index of social competence could potentially be considered too crude for the investigations in this thesis. As Gottman et al., (1997) and others have shown, a peer choice on only one dimensions does not necessarily reflect social competences, and it would have provided far greater insights into the relationship between the formation of attachment representations, understanding of mental states and the subsequent impact on social competence had measures been included which tapped into the quality of interactions between peers as described in the literature, e.g., conflict resolution, joint pretend play etc. Whilst Study 3 (N=22) tried to address this by including a measure of peer representations, the sample size was small.

Despite this criticism, peer nominations procedures continue to be used with success elsewhere (e.g., Booth-Laforce et al., 2006) and the Extended Class Play peer nomination procedure (ECP; Masten, Morison, & Pellegrini, 1985) which has been developed further (ECP: Burgess, Wojslawowicz, Rubin, Oh, Booth-LaForce, & Rose-Krasoner, 2006) has been used to examine the links between peer-group functioning and early attachment security. One way of addressing the more complex nature of interactions between peers would have been to focus instead on friendships. It would undoubtedly have been very valuable to have looked at the many aspects of children's relationships amongst their friendship group, but this was beyond the scope of the researcher, carrying out this series of studies without the aid of a research team and with limited resources. Up until the early '90s most research focused on the possible links between parent-child relationships and peer status rather than on friendship (Dunn, 1993). Although there are numerous studies reporting significant correlations between attachment quality and some aspects of social behaviour with peers (e.g., Sroufe, Egeleand & Kreutzer, 1990; Cohn, Patterson & Christopoulos, 1991) there are several

limitations to these studies as there are to the present thesis. Firstly the way that peer relationships are measured is quite limited and secondly these studies tend to look at children's' relationships with peers in a narrow context. Moreover, there are no *causal* links established between attachment status and later peer behaviour/popularity.

An alternative approach, then, would be to focus on **children's** interactions with a close friend, and particularly to look at specific aspects of this friendship such as frequency of disputes, the emotions expressed in the relationship, the extent to which the child takes their friend's point of view into account, and the outcome of the conflict. Other aspects of friendship that give a greater insight into how children represent one another include affectionate behaviour, engagement in joint pretend play and the general connected communication with these friends.

There is also a question mark over the replicability of peer popularity. With children of the age used in this thesis, nomination procedures are not necessarily very stable, with negative nominations being even more unstable. Thus, some of the findings whether significant or non-significant, regarding the relationship between peer popularity and other variables may be only representative of a relationship between variables at a very specific time point, and not be stable across time (although the same has been argued with respect to attachment-related representations). As previously stated, existing studies suggest that children's social standing in their peer group may not be a stable phenomenon (Cillessen, Bukowski & Haselager, 2000), and it may therefore not be the most appropriate way of testing attachment/peer relations links. Other factors believed to play an important role in peer popularity were not taken into account in the peer popularity measure. For example, physical attractiveness, athletic ability, temperament, or the amount of previous peer experience (relevant to the youngest children) which are unlikely to be directly correlated with a child's attachment representations and may have consequently obscured any correlation

in this sample size. Despite this, the measure of peer popularity has been used in similar studies to effect (e.g., Futh et al, 2008) and the finding in the present thesis that more popular children (as rated in the peer popularity task) had less peer problems, hyperactivity and less difficulties overall helps to substantiate the use of this measure of peer relationships.

Even with the possible strengths of using the peer popularity method, and the supporting evidence for its use from research in the field (Futh et al., 2008), it remains questionable whether or not peer popularity is a sufficient index of social competence on its own. As outlined in Chapter 1 there is no clear consensus on a definition of social competence in childhood. There are clearly many other indicators of social competence aside from children's popularity amongst their peers, and given the unstable nature of these relationships as stated above, perhaps it is better viewed as *one aspect* of children's social functioning at a given time point. The significance of the child's social network, particularly their peer groups, should not be ignored however, particularly in relation to children's developing ToM, and ability to mentalize. Humfress et al., (2002) in examining models of social cognition in early adolescence ask whether in this age group it may be the relationships with peers that are most closely connected with individual differences in mentalizing.

Despite these limitations, several researchers continue to use the peer popularity procedure with confidence (e.g., Futh et al., 2008) using other rigorous research methods and measures and have made an important contribution to the field of social cognition, looking at associations between attachment representations, mentalizing and social competence (as measured by peer popularity).

6.7.4 Limitations of the sample population

Aside from the issues relating to measurement, other limitations of the study include the significant 'attrition' factor in the school. This was unavoidable but undoubtedly an important factor in terms of both the sample size in the final cohort and the representativeness of the children. This was an inner city London school with a large transient population and it was therefore not possible to look at the stability of relationships between variables over time, or how relationships in Study 2 at baseline predicted performance one year later at follow up for the whole cohort, which weakened the results. It is highly likely given the location of the school that this study included a disproportionate number of at-risk children from socially and economically disadvantaged backgrounds. The findings may therefore not generalise to low-risk samples. Set against this limitation is the strength that given the at-risk nature of the population there was a comparatively high rate of participation. Another strength to add to this is that there is currently insufficient data on high-risk non-clinical samples of children with respect to attachment studies.

Other demographic data which was absent from the present thesis could have added to the richness of the studies. For example, there are clearly many factors influencing children's performance on ToM which it has not been possible to account for in this series of studies. Meins et al, (2002) found that mother's educational attainment was a significant associated factor, with children of more educated mothers attaining higher scores on a composite ToM measure, although it was not found to be an independent predictor of ToM. More information regarding the children's family background and maternal educational attainment would have been interesting. Set against this limitation is the strength that data were collected on the number and age of siblings in the child's family which permitted a re-examination of Perner et al's (1994) finding that children who had a sibling, and particularly an older one, were more likely to have well-developed ToM skills. A finding which was not supported by the data in the present thesis.

6.8 Clinical Implications

Although the studies in this thesis used a non-clinical sample of children, they were children from a predominantly socio-economically disadvantaged background in an inner-city school. It is therefore useful to look at the results from the present thesis in the context of any implications for clinical interventions, both in the fields of attachment and mentalizing/ToM.

6.8.1 Clinical application of the MSSB

Previous use of the MSSB has indicated a potential for clinical usefulness. Oppenheim et al., (1997) found a correlation between the representations of parental figures in 4- and 5-year-old children's play narratives and the child's behaviour as rated by mothers, as well as a correlation with maternal psychological symptoms in a non clinical sample. Children with more negative parental representations in their play narratives were rated as having more behaviour problems, and their mothers rated themselves as having more psychological problems. Moreover, in the same sample Warren et al., (1996) found a positive correlation between aggressive/negative emotion themes in play narratives and behaviour problems as rated by parents and teachers. In a clinical sample Toth et al., (1997) found correlations between content themes and quality of play narratives and history of maltreatment. Studies such as these ones point to the importance of increasing the range and availability of interventions at an early age in order to prevent later psychopathology. This is recently highlighted in the Department of Health's (2009) 'New Horizons' document which states that "an estimated 60-70 per cent of children and young people who experience mental health problems have not had appropriate interventions at a sufficiently early age."

Notwithstanding the positive associations that have been found between measures such as the MSSB and measures of behaviour and other areas of psychological functioning, the measure in itself has the potential to be used as a clinical tool. It is useful to keep in mind that narratives offer the child both the opportunity to play but also because of their “as-if” nature, offer the child an opportunity to test behaviours and to act out aggressive impulses and wishes in a safe space (Marans, Mayes, & Colonna, 1993). Story stem narratives can offer an important contribution to the research on process and outcome of child psychotherapy as insights into children’s ways of dealing with the relevant themes and conflicts of their play narratives (as elicited by the MSSB method) and can inform psychotherapeutic techniques. As Humfress et al (2002) suggested, however, narratives may also prompt children with avoidant patterns of attachment to disengage from the interview and interviewer, and therefore consideration needs to be given to what exactly attachment story stems are eliciting in terms of both children’s attachment histories and their ability to mentalize. A similar finding emerged from Stadelmann et al’s (2007) study in which the authors proposed that a group of children may find the actual themes and content of the prompts so frightening and evocative of earlier trauma that they either disengage or fail to produce any emotionally laden response.

6.8.2 Contribution to understanding psychopathology in childhood

The findings in the present thesis that children’s attachment representations are linked not only to their mentalizing (ToM) but also to their behaviour (as measured by the SDQ) provide some further evidence for the relevance of understanding the kind of processes that are operating in children who exhibit emotional and behavioural problems in childhood, adolescence and into adulthood. Research findings such as those by Hill et al., (2007) add to the growing evidence for the importance of understanding psychopathology in

relation to the child's (or adult's) capacity to evaluate other people's behaviour in terms of their mental states (or intentionality in Hill's paper). This process includes reflective function and mentalization. As Hill et al., (2007) point out, if a group of children with insecure attachment learn to inhibit intentionality in order to alleviate their anxiety; they are liable to be running the risk of being unable to act effectively in social situations. In the present thesis, the finding, repeated at two different time points, that disciplinary attachment-related representations are both associated within and across time points with problems amongst the peer group, lends further support to those interventions that target early attachment relationships when trying to tackle children's behavioural problems.

6.8.3 Attachment-based interventions

The most relevant and exciting area of work around the clinical implications of attachment based research is in the field of attachment based interventions. Juffer (2008) states that "the concept of secure attachment relationships and the related concept of parental sensitivity appear to be highly significant for the clinical field, including the development and evaluation of attachment-based interventions for at-risk families." Juffer and colleagues developed the Video-feedback Intervention to promote Positive Parenting (VIPP). This intervention was the outcome of extensive research carried out by Juffer and colleagues at the University of Leiden into early attachment relationships and parental sensitivity. Whilst the findings in the present thesis do not permit a rating in terms of attachment security, they do reflect the relationship between young children's attachment-related representations, their ability to mentalize and their social relationships, and as such offer some data with respect to groups of children who may be more or less resilient. It could be envisaged that using similar tools in the future with a group of school aged children could help to highlight a group

who are struggling to make social relationships and who have a poorly constructed, or incoherent narrative with respect to their key attachment relationships, and who may therefore be more vulnerable to experiencing both problems in relationships and with behaviour.

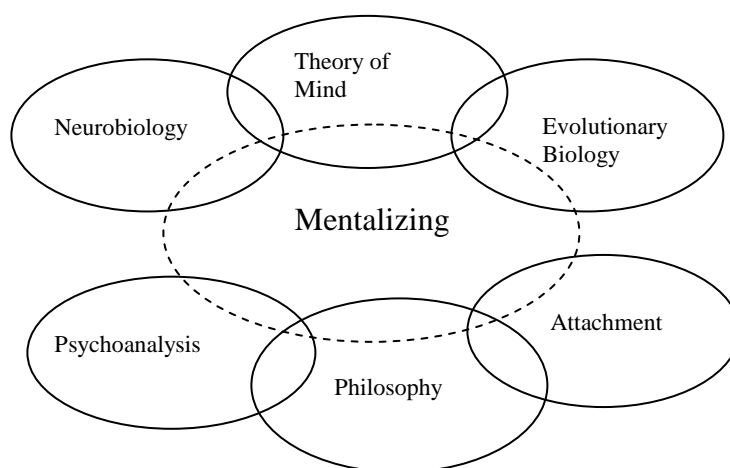
One important area that has been highlighted, both through the work of Humfress et al (2002), Dunn (1996) and others, and supported in this thesis, is the finding that social cognition is influenced by the demands of the specific task. If measures can help to identify children who have difficulty mentalizing and have an incoherent attachment narrative and distinguish them from children who have good mentalizing capacity but incoherent representations, it follows that if used clinically this finding could help to pinpoint those children who will have more severe impairments in social adjustment. These children and young people will also be less likely to be able to make use of interventions that focus on mental states, but interventions should certainly be developed to try to get around this difficulty.

6.8.4 Mentalization-based treatment interventions

Since the inception of this thesis, there has been an interesting clinical development which has arisen out of the academic and theoretical work outlined in this thesis and in others' research in the field of attachment and ToM. Mentalization Based Treatment or MBT is a therapeutic intervention that specifically targets the mentalizing skills of adults and young people, drawing on the research link between ToM and attachment. Given the generality of the definition of mentalizing, most mental disorders will inevitably involve some difficulties with mentalization, but it is the application of the concept to the treatment of borderline personality disorder (BPD), a common psychiatric condition with important implications for public health, that has received the

most attention. Patients with BPD show reduced capacities to mentalize, which leads to problems with emotional regulation and difficulties in managing impulsivity, especially in the context of interpersonal interactions. Treatment interventions have begun to focus on emergent PD in adolescents who self harm (e.g., Rossouw’s RCT on adolescents who self harm – trial near completion). The concept of mentalizing and mentalization based treatment is still being refined through research. One of its strengths is that it is anchored in multiple domains of literature as Figure 6.1 illustrates below (Allen, 2006).

Figure 6.1 Mentalization and links to other domains of knowledge



Mentalization based treatment (MBT) is a time-limited treatment which structures interventions that promote the further development of mentalizing. The therapeutic intervention is based on the premise that there is an established relationship between ToM and children’s attachment relationships. Moreover, the quality of children’s primary attachment relationship *facilitates ToM development* as suggested in both Study 1 of the current thesis and previous research (e.g., de Rosnay & Harris, 2002; Fonagy and Target, 1997, Fonagy, Redfern & Charman, 1997, Harris, 1999; Meins, Fernyhough, Russell & Clarke-Carter, 1998; Raikes & Thompson, 2006; Steele, Steele, Croft & Fonagy, 1999; Symons, 2004; Thompson, 2000; Ontai & Thompson, 2002). MBT as an

intervention is a direct result from the finding that a mother's secure attachment history permits and enhances her capacity to explore her own mind and promotes a similar enquiring stance towards the state of the infant. Crucially, there has to be the communication from mother to infant that the infant has his/her own mind, which is separate from the mother's and that the mother clearly communicates this mental state back to the infant. This, along with what Fonagy terms 'contingent marked mirroring' of the infant's facial expression and behaviour, reflecting their internal mental state, forms the basis of mentalizing. The clinical application of this theory is still evolving and work by Rossouw, Bevington, Fonagy, Bateman, Midgely, and the clinical team at the Anna Freud Centre is still in the relatively early stages in terms of developing an evidence base for this intervention. Specific therapeutic techniques for working both with young people and with families, using a mentalizing approach, have been developed to try to both highlight the appropriate use, and promote general use, of mentalizing within an individual and within families.

The therapeutic approach is premised on the following theoretical understanding: When an infant is exposed to trauma this activates attachment seeking which leads to problematic interactions between the infant and his carer and increases exposure to problematic interactions when there is a failure to mentalize on the part of that carer. In other words, the infant who hurts him or herself looks to the mother's face expecting to see how he or she feels reflected back in her expression. If she is preoccupied by something else, when he or she looks at her, he will only see how *she* feels (Steele and Steele, 2008). So, for example, if the carer is feeling panic and this is communicated facially to the infant, he or she ends up experiencing his or her own feeling as panic rather than unhappiness. The capacity to reflect on intense emotion is one marker of secure attachment (Sroufe, 1996), and therefore when the mother is unable to reflect back the infant's emotion, or where her expressed emotion is incongruent with the infant's, this is a clear indication of an attachment that is less than secure.

According to Fonagy (personal communication, 2011), hyper activation of this attachment system leads to a deficit in mentalization. When therapeutically, a clinician tries to enter this relationship and make use of a normal attachment model, thinking this will lead to a down regulation of the patient's emotions, they are actually activating their attachment system negatively and triggering increased trauma. In high arousal states individuals are more likely to be more implicit and less thoughtful in their mentalization.

The link between attachment and ToM is found in this explanation of reflective function: Reflective function is mentalization in the context of attachment and is 'anchored in careful study of how adults use, or fail to use, mental state language (beliefs and desires) when pressed to give an account of their developmental history' (Steele and Steele 2008, p.135).

MBT has been found so far to be very effective with adults and adolescents diagnosed with Borderline Personality Disorder, and also an effective treatment for adolescents who self harm (Rossouw's RCT in preparation). Research is still underway with younger children and families, but preliminary findings point to the positive outcomes for this approach.

Other research within the MBT field has focused on assessing mentalization about feelings and relationships in school-aged children (e.g., Target MBT conference paper 2010). The tentative suggestion from Target's research is that the relationship between attachment and mentalization has different stages and children do not normally focus mentalizing capacity mainly on their attachment relationships in the school years, but rather used mentalization in their relationships with peers. This replicates Schneider et al's (2001) work. These findings lend further support to the results of the longitudinal study (both baseline and follow up) of this thesis for the decrease in the positive association

between ToM and attachment representations about parents as the child grows up.

6.8.5 Relationship between mentalization and psychopathology

There is a growing body of research examining the relationship between mentalizing skills and childhood psychopathology (e.g., Fonagy et al., 1997c) that is providing extremely useful theoretical insights which have real practical applicability to clinicians working with children and adolescents. The research of Fonagy et al., (1997c) and others has led to a greater understanding of the kinds of deficits of mentalizing that are frequently found in not only personality disorders in adulthood but emergent personality disorder in adolescents, particularly where self harm is involved. There is an exciting development in this field, currently nearing completion where mentalization based treatment interventions are being used with this adolescent population to see if this will reduce both self-harming behaviour and depression in this group which is extremely hard to engage and treat (Rossouw's RCT – in preparation).

The relationship between children's ability on ToM tasks and their ability to tell an organized, coherent story with respect to their attachment representations suggests that in childhood there is a relationship between the development of cognitive skills and children's early relationships and points to a link with both the development and understanding of emotions. ToM has long been considered from a developmentalist's perspective to be a stage which all children pass through, irrespective to any relationship variables, but findings in this thesis and from other similar studies point to the importance of key aspects of relationships, such as attachment in acting as possible *precursors* to cognitive skills such as ToM.

Understanding the links between these constructs may not just be of interest to researchers and clinicians, but also of relevance to schools. Many boroughs

across the country have now developed Mental Health Toolkits for identifying and dealing with emotional and behavioural problems in school children, and the focus is on promoting the emotional health and well-being for young children. Bringing a focus onto the links between emotional and cognitive development is an important part of the development of this work within schools.

6.8.6 Direct clinical implications from the findings

The non-significant relationship between attachment representations, ToM and peer popularity has several clinical implications. Firstly, the reasons children rate others as desirable or undesirable in terms of friendships, are not only complex but unstable over time. The finding that children with more advanced ToM skills were rated as unpopular by their peers replicates those studies that have examined the relationship between competence on ToM tasks and bullying (behaviour) e.g., Sutton (2006). Sutton showed that when children who were highly skilled on ToM tasks were of school age, a certain group used these skills to the detriment of their peer group, i.e., used their ability to understand the thoughts, feelings and intentions of others to exploit other children through bullying behaviour. Studies such as Sutton's (2006) have suggested avoiding the tendency to "pathologize" bullying. Instead the author suggests that teachers should increase their awareness of the role that social cognition and environment play in bullying and make their aim to increase good behaviour and respect rather than focus on decreasing bullying. One could argue that a social skills programme which focuses on enhancing mentalizing in school-children would be one way to address this. A reassessment of the type of child that may bully and the socially skilled methods they may use could also increase the vigilance of teachers and classmates. Further research should therefore suggest ways in which knowledge about social cognition could be used to understand bullying, along with other aspects of children's interactions with peers.

Previous research (Cutting and Dunn, 2002) also highlighted the disadvantages, as well as reiterating the advantages, of having a well-developed understanding of other people's thoughts, intentions, feelings etc. One area they highlight in their study is with respect to criticism (Cutting and Dunn, 2002). They proposed that those children who had well-developed skills in terms of understanding other people's mental states may have greater insight into what their teacher says and may therefore be more wounded by their criticism compared with children who have a less developed sense of mental states. With a larger sample than in Dunn's 1995 study, they found support for this and children with higher social cognitive understanding scores *were* more sensitive to criticism. The findings in the present thesis support the need to consider the implications of having a well-developed understanding of mental states (both positive and negative) for children in their school settings.

A further clinical implication of the findings in this thesis is that child negative expectations may be a risk factor or a mechanism for the development of later anxiety. Children's narratives may be useful for examining such representations and identifying children at risk. Therefore, although the children's responses in the present thesis may not be giving us an accurate measure of attachment *per se*, they may be offering us an important narrative account of a child's internal representations that could be a predictor of later behaviour and cognitions. The association between children's disciplinary representations and problems amongst peers (as rated by teachers on the SDQ) offers support for the more general link between attachment and subsequent childhood psychopathology. Given this, further research which extends the exploration of children's narratives and their relationship with future behaviour could be vital to aiding our understanding of when and where to intervene in supporting children in forming more coherent and positive narratives with respect to key attachment figures. Schechter et al (2007) found that the MSSB was useful for assessing the child's representational world in the wake of trauma affecting the caregiver in

their study of children whose caregivers had been subjected to domestic violence and who had experienced severe PTSD as a result. They suggested that perhaps the MSSB (and other attachment measures such as the FAD-T) might provide a clue to the psychological processes underlying the intergenerational communication of violent trauma. This could provide an essential tool in the assessment of at-risk children.

6.9 Puzzles and unanswered questions

The inconsistent findings in this series of studies, particularly with respect to the relationship between attachment-related representations and ToM and their relationship to peer popularity, raises several key unanswered questions. Setting aside the methodological issues which have been discussed at some length, one key question is to what extent does the influence of internal working models on children's developing understanding of others as having mental states, shift and develop with age? Secondly, there is robust evidence for a link between parents' state of mind, as assessed on the AAI and infant attachment classifications as assessed with the Strange Situation. This association was also found when mother's attachment status was assessed prenatally (Steele, Steele & Fonagy, 1996). But what does this tell us about the possible link between parents' state of mind and coherence of their attachment narratives in terms of their influence on children's attachment-related representations, as measured by narrative techniques? Steele et al., (2003) have provided some data already to suggest that there is an overlap between the MSSB and the AAI. Data from Study 2 at both baseline and follow up in this thesis point to the relationship between representations of attachment and childhood behaviour. The significant association between positive representations of the mother and prosocial behaviour are interesting but do not explain the pathways between attachment security and functioning. In understanding this pathway, one needs to consider

that a correlation between two variables does not indicate the direction of its effect. In the field of attachment this is particularly pertinent as there are many other factors that can influence the outcome. To test the pathway, research designs need to be longitudinal, with repeated measures, and using valid measures which can truly measure attachment security, or at least be the closest approximation. Also intervention designs could be used to test this pathway.

The impact of the story stems on the children taking part in this study is not well understood, and it is possible that the assessment material may act as a trigger for specific distressing memories which in turn affects their performance on other tasks, as outlined earlier in this chapter. Van Ijzendoorn et al's (1995) meta-analysis of studies on language, intelligence and attachment indicated that some language based assessments of attachment are likely to be impaired due to the attachment related anxiety and diversion of attention that the measures provoke. The impact of completing story stems relating to anxiety provoking and threatening situations on children with different attachment histories is something that is not well understood.

There is a good deal of uncertainty still about the meaning of 'narrative coherence' in this particular age group of children. Does this relate to children's verbal ability above all else, or are there indications that at the pre-school and primary school age children's narratives with respect to their attachment relationships are reflecting underlying attachment status? Furthermore, do these narratives result from children's developing ability to understand and reflect on the mental states of others, and what influence is the family and peer group continuing to have on the development and contextual use of this mental state understanding? There needs to be further clarity on the meaning of 'disciplinary' in children's representations and how this relates to attachment and subsequent behaviour. Studies to date have only gone part way to understanding the underlying mechanisms involved in teasing out these

constructs of social cognition from one another, and further work still needs to be developed.

6.9.1 Conclusions

Summarising the findings then from this series of studies, the main positive findings of interest are as follows:

1. Children's attachment-related representations were significantly associated with ToM performance, specifically the narrative coherence of attachment-related stories after controlling for language in Study 1 and at baseline in Study 2.
2. Narrative coherence dimension of the attachment-related representations was associated with peer acceptance, after controlling for the effects of ToM in a small sample study (N=36).
3. ToM was significantly associated with negative peer nominations after controlling for language in a longitudinal study at both time points (N=69, N=56).
4. Positive attachment-related representations were significantly associated with prosocial behaviour (SDQ teacher version)
5. ToM was strongly associated with verbal ability and improved with age.
6. Disciplinary story stem representations were correlated with peer problems on the SDQ (teacher version) at both time points and between time 1 and time 2 in the longitudinal study.

A novel feature of the thesis is that it set out to contrast plausible social cognitive explanations for popularity in the peer group. Despite the criticism of focusing on peer popularity as a measure of social competence, this remains an important indicator of children's functioning in childhood, and other studies

(e.g., Futh et al., 2008) have focused on peer relationships as a clinically relevant outcome. The overall findings in this thesis neither confirm nor reject the hypothesis that both ToM and attachment are independent predictors of peer acceptance. That is, evidence from one of the studies suggests that not only do these constructs overlap ($r = .53$, $p < .01$), but so do their effects on peer relations. Study 2 provides inconsistent evidence to support the association between these constructs.

The second hypothesis in study 1 that was examined was that the effects of ToM and attachment on peer acceptance are completely overlapping. Although the results concerning this hypothesis are less convincing, this explanation can be dropped as well in favour of an alternative explanation that the effects of ToM on peer acceptance may be **influenced** by attachment.

However, this study also found that the attachment construct failed to predict peer nominations of dislike using the sociometric measure of peer popularity independent of intelligence.

Results from the present thesis have provided inconsistent evidence that attachment representations are a precursor to ToM, but other precursors are not yet fully understood. An examination of conversations within families as in Dunn and Brophy's (2005) study may have gone some way further to elaborate these precursors and tease out individual differences in children's grasp of ToM. The important findings from Meins et al.'s (2002) study where a social predictor of mentalizing development was identified are of particular importance for both future research and clinical developments. Most previous research in this area (e.g., Dunn et al., 1991) has only obtained measures of social environment and interaction at an age when children have already made considerable advances in mentalizing development, enabling them to talk competently about their own and other people's psychological states. In contrast, Meins et al, (2002) found

that children's ToM is predicted by maternal mind-mindedness at an age when children have not yet acquired any language, and are in the early stages of sensorimotor development. If this finding can be upheld in other empirical studies then future research can go beyond simply looking at the relationship between attachment security and other variables, and focus instead on the conversational detail of the interactions between mother and infant in the early stages.

Is this maternal mind-mindedness somehow reflected in the narrative coherence of children's attachment representations in this thesis' studies? Coherence and quality of narration were found to be significantly associated with social competence especially with social initiative, in normal and clinical children (von Klitzing et al, 2007). These results, along with the finding of a significant association between narrative coherence and peer popularity in the present thesis, may be indications that children who are able to deal with relational conflicts on a narrative level, and who had the ability to find a coherent way of proceeding in their play narratives felt secure in their interactions with peers.

6.9.2 Future directions and research

Family talk about feeling states with respect to children's attachment representations is a key area that went uninvestigated in this thesis due to time and resource limitations. Since beginning these studies, considerable evidence has been mounting for the importance of *what* mothers say to their growing infants, particularly talk that relates to explanatory, causal and contrastive talk about cognition (e.g., Slaughter, Peterson, & Mackintosh, 2007; Thompson, 2006a) rather than simple mentions of cognition. Future studies with a clinical emphasis should employ a methodology which includes this important variable and use it to make predictions about children's later behaviour. Given the

evidence that narratives containing certain themes can be predictive of patterns of behaviour (Moss et. al, 2009), a study extending the work in this thesis could include an analysis of these themes in addition to simply looking at children's levels of narrative coherence in relation to peer relationships.

An aspect of attachment research of increasing importance to current clinical practice concerns disorganized attachment. Research on these disorganized attachment patterns in both low-risk and high-risk samples suggest that it is associated with rather specific distortions of care-giving behaviour and with unresolved experiences of loss and trauma in the parent. There is evidence that current parent-oriented treatments may be relatively ineffective with this group and such treatments need to incorporate a new focus on parental mental state and distorted care-giving behaviours. At present there is a relative lack of validated assessments of disorganization for the middle childhood years or early teen years (Green and Goldwyn, 2002). Developmental stage is thought to be an important variable. The Adult Attachment Interview has been adapted for use in young teenagers (Ammaniti, van IJzendoorn, Speranza, & Tambelli, 2000) and results suggest a higher rate of dismissive (avoidant) scores at this age. This may represent an alteration in internal attachment constructs, or partly reflect age-specific effects in experience or discourse style. The narrative-based measures used in younger children, particularly those related to narrative 'coherence' such as the MSSB used here in this thesis, are also significantly affected by age effects in cognition and language as results here have highlighted. The relationship between these narrative-based measures and language has also been demonstrated elsewhere (Waters, Rodrigues, & Ridgeway, 1998; Green et al., 2000). Attachment disorganization is certainly a marker for emotional vulnerability and lack of resilience, but methods for identifying children at risk beyond infancy using robust measures of attachment representations in young children still need further development.

This thesis has provided inconsistent evidence for the importance of a relationship between children's representations in early childhood and their understanding of mental states and some stronger evidence for the relationship between children's attachment-related representations and their behaviour. Less conclusive is the evidence relating to children's social competence. It is hoped that future studies will take forward the interesting findings on children's narrative coherence and examine the extent to which children's ability to make sense of their early attachment relationships impacts on their wider social functioning. Future studies should take into account more the context-dependent nature of social cognitive processes as studies assessing mentalizing without regard to context may not accurately specify how children will react in real-life situations. For example, direct observations of children interacting with peers, siblings, parents and teachers would provide a rich source of data on the use of mentalizing in different contexts. There is therefore a need to assess how children make sense of their social worlds using a combination of experimental tasks and naturalistic observations (Dunn, 1996). If this can be better understood in early to middle childhood it will be of great benefit to clinicians currently struggling to devise effective parent-child interventions with this age group. Moreover, furthering our understanding of the mechanisms by which children come to learn how to understand their own and other's minds will enable clinicians to offer early interventions, particularly preventative ones, focusing on where this crucial part of development is likely to go wrong. This type of work has already begun with some of the programmes from within the MBT field, such as the Minding the Baby programme (Sadler, Slade & Mayes, 2006) in which mentalization is used with a high-risk first-time parents group living in an inner city in the United States of America. The goal of this approach with these young parents is to enhance the physical health, mental health, and development of infants and their mothers, and particularly to develop healthy and sustaining attachments between mothers, children and extended families (Slade et al., 2006; Slade, Sadler & Mayes, 2005).

A true test of the overlapping or distinct nature of these two models of social cognition would be to take the research into a more naturalistic setting and then to take these hypotheses into the clinical context. It is evident that the influence of representations on social competence, specifically here on peer popularity, is a complex one, involving aspects of social-cognitive and affective-cognitive processing.

The associations found in this thesis indicate that representations or mentalizing ability may only account for a small portion of the variance in children's behaviour. In view of this it is important not to take a deterministic view of the role of attachment representations in social competence, which is likely to be the result of many different factors. Social competence, and a more developed ToM, might be achieved by learning sensitive responsiveness from parents, but may be influenced by teachers, peers, and other figures in the social network. Competence may be due in part to biological factors such as temperament or attractiveness or life events. While some aspects of behaviour may be stable and enduring, others may be subject to change, with a concomitant change in representations. Indeed interventions on attachment rest on this assumption. Theoretical understanding of the complex relationship between attachment, maternal mind-mindedness, reflective self and mentalization has made huge advancements since this thesis was begun. Research studies that can empirically investigate this complex relationship between these constructs of social cognition still have some way to go.

Finally, the positive association found between children's disciplinary attachment-related representations, and teacher-rated problems amongst peers signifies the need for further research that uses a longitudinal or intervention design to understand the nature of attachment representations that have a negative content and their impact on subsequent relationships in early childhood. How children conceptualise positive and negative discipline, and how this

relates to later behaviour may have important clinical implications. This finding may represent another small step towards understanding the association between early parent-child relationships and children's subsequent ability to understand and relate to others.

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APPENDICES

- A Ethical Approval Form
- B Consent form for parents
- C MSSB Story Stems, Administration & Coding Systems
- D MSSB Sample Transcripts and Coding Sheets
- E Peer nominations response sheet
- F Peer Representation Questionnaire
- G Strengths and Difficulties Questionnaire & Coding
- H. Pianta Student-Teacher Relationship Scale & Coding
- I. Second Order Happé's Strange Stories and Sample Transcript
- J. ToM Measures and Coding Sheets
- K. WISC and WPPSI Vocabulary Scales
- L. Study 4

APPENDIX A –ETHICAL APPROVAL FORM (1)

The Guy's,
King's College and
St Thomas'
Hospitals' Medical
and Dental School

22 October 1999
99/09/05

Guy's Campus
Guy's Hospital
London SE1 9RT

Guy's Research Ethics Committee

Acting Chairman: Dr David Miles
Administrator: Mrs Valerie Heard
Tel: 0171 955 5000 Ext. 5181
Fax: 0171 955 4303
valerie.heard@kcl.ac.uk

KING'S
COLLEGE
LONDON
FOUNDED 1292

University of London

Miss Sheila Redfern
Unit of Psychology
5th Floor Thomas Guy House
Guy's Hospital

Dear Miss Redfern

Re: 99/09/05 Assessing children's attachment representations: their relationship to behaviour problems and skills of perspective-taking and attention
Amended Application Version 2 dated 18 October 1999
Information Sheet/Consent form dated 3 September 1999

Thank you for sending an amended application which meets the Committee's concerns detailed in my letter of 1 October 1999. I confirm that the information sheet/consent form sent originally is suitable and the study has Guy's Research Ethics Committee approval.

All consent forms in this study need to carry the Ethics Committee reference number and version number/date.


Permission is granted on the understanding that:

- i) Any ethical problem arising in the course of the project will be reported to the Committee;
- ii) Any change in the protocol or subsequent protocol amendments will be forwarded to the Committee on the enclosed form. The principal investigator should see and approve any such changes and this needs to be indicated in correspondence to the Committee.
- iii) All serious adverse events must be reported within 1 week to the Ethics Committee, at the same time indicating that the principal investigator has seen the report and whether or not they feel it poses any new ethical or safety issues.
- iv) A brief report will be submitted one year after commencement, thereafter annually, and after completion of the study.

It is IMPORTANT that you notify the Ethics Committee of the date of commencement.

A list of members in attendance at the 29 September 1999 meeting is enclosed.

Yours sincerely



Dr D W Miles
Acting Chairman Guy's Research Ethics Committee

copy sent
15/03/00

Please reply to:

Guy's Research Ethics Committee
Department of Nephrology & Transplantation
Floor 5 Thomas Guy House, Guy's Hospital, London SE1 9RT

APPENDIX A – ETHICAL APPROVAL FORM (2)

Guy's & St Thomas'

HOSPITAL TRUST
Guy's Research Ethics Committee

Chairman: Professor Steven Sacks
Administrator: Mrs Valerie Heard

21 August 2001
99/09/05

Guy's Research Ethics Committee
Guy's Hospital
London SE1 9RT

Tel: 020 7955 5000 Extension 5181
Fax: 020 7955 4303

valerie.heard@kcl.ac.uk

Miss Sheila Redfern
Unit of Psychology
5th Floor Thomas Guy House
Guy's Hospital

Dear Miss Redfern

Re: 99/09/05 Assessing children's attachment representations: their relationship to behaviour problems and skills of perspective-taking and attention
Amendment dated 12/07/07: The social-cognitive bases of behavioural problems in young children
Continuation of study, using same school and children. Amendment to MacArthur Story Stems measure, with 3 further stories.

An Executive Sub-Committee of the Guy's Research Ethics Committee met on 21 August 2001 to consider the above amendment(s) and gave approval on behalf of the Committee. This will be reported in the minutes for the meeting held on 29 August 2001

This Committee functions in accordance with the guidelines of ICH GCP. A list of the full membership of the Guy's Research Ethics Committee is given below.

Yours sincerely


Valerie A. Heard

Mrs Valerie Heard
LREC Administrator

Full membership of the Guy's Research Ethics Committee

Professor Steven Sacks, Chairman, Professor of Nephrology	Dr Tim Mann	Clinical Pharmacologist, ODRU Ltd
Miss Sarah Allen	Anna McKay	Legal/Lay Member
Miss Lisa Burnapp	Dr David Miles	Consultant Oncologist, Guy's
Dr Matthew Dawes	Mr Tim O'Brien	Consultant Urologist, Guy's
Dr Gill Du Mont	Mrs Gill Paterson	Priority Care, non-Guy's
Dr Mary Dyson	Professor Costantino Pizzalis	Consultant Rheumatologist, Guy's
	Dr John Reidy	Consultant Radiologist, Guy's
Dr Michael Fenlon	Professor Emily Simonoff	Professor of Child & Adolescent Psychiatry, Guy's
Mr John Fowler		Senior Lecturer in General Practice & Primary Care
Dr Mike Isaac	Dr Val Wass	

APPENDIX A- ETHICAL APPROVAL FORM (3)



Guy's Research Ethics Committee
 3rd Floor Nutfield Annexe
 Henriette Raphael House
 Guy's Hospital, London SE1 9RT

18 February 2004
 Ref: 99/09/05

Chair: Professor Steven H Sacks
 Administrator: Mrs Valerie Heard
 Direct line: 020 7955 4559 (After 6 March changes to 020 7188 2260)
 Fax: 020 7955 4303
 Email: Valerie.heard@gstt.sthames.nhs.uk
 Website: www.corec.org.uk

Quote reference in all correspondence

Miss Sheila Redfern
 Unit of Psychology
 5th Floor Thomas Guy House
 Guy's Hospital

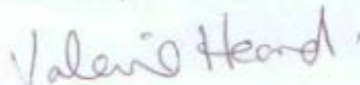
Dear Miss Redfern

Re: 99/09/05 Assessing children's attachment representations: their relationship to behaviour problems and skills of perspective-taking and attention
 Report of work to date and request for study extension: Connections among attachment representation, theory of mind and peer acceptance in young children dated 3 December 2003
 Extension approved following updated information letter to parents dated January 2004

On 15 December 2003 an Executive Sub-Committee of the Guy's Research Ethics Committee reviewed the above amendment on behalf of the Committee. Following receipt of the requested changed information letter, this was approved. Details will be listed with the minutes for the meeting held on 17 December 2003

This Committee functions in accordance with the guidelines of ICH GCP. A list of the full membership of the Guy's Research Ethics Committee is given below.

Yours sincerely




Mrs Valerie Heard
 LREC Administrator

Full membership of the Guy's Research Ethics Committee

Professor Steven Sacks, Chairman, Professor of Nephrology	Dr Jacques Mizan Academic Assistant GP Member, non-Guy's
Miss Sarah Allen Consultant Physician, Guy's	Professor Costantino Pitzalis Consultant Rheumatologist, Guy's
Miss Sara Arenas-Lopez - Pharmacist	Mrs Ruth Sanderson Lay Member, Teacher
Mr Nicholas Beechey-Newman Consultant Surgeon, Guy's	Mr Richard Sena Lay Member, non-Guy's
Miss Lisa Burnapp Nursing Representative, Guy's	Dr M.K. Sharief Consultant Neurologist
Dr Michael Ferilon Prosthetic Dentistry, Guy's	Dr Shane Tibby Paediatric Intensive Care Unit, Guy's
Mr John Fowler Lay Representative, non-Guy's	Hayley Wells Pharmacist, Guy's
Dr Alison Martell Consultant in Child & Adolescent Psychiatry, non-Guy's	Dr Adrian Williams and Dr Adrian Hopper, Co-Chairs St Thomas' Hospital LREC, ex officio members

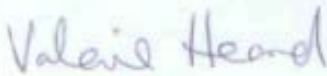
An advisory committee to South East London Strategic Health Authority

APPENDIX A – ETHICAL APPROVAL FORM (4)

<p>03 November 2004 Ref: 99/09/05</p> <p>Miss Sheila Redfern Unit of Psychology 5th Floor Thomas Guy House Guy's Hospital</p> <p>Dear Miss Redfern</p> <p><i>Full title of study: Assessing children's attachment representations: their relationship to behaviour problems and skills of perspective-taking and attention</i> <i>REC reference number: 99/09/05</i> <i>Two new research students (intercalated Psychology BSc) carrying out research in 2004/05.</i> <i>CVs for Juliet Kerr and Helen Toop</i> <i>Details in Amendment Notification Form dated 22 October 2004</i></p> <p>The above amendment was reviewed by a Sub-Committee of the Guy's Research Ethics Committee at the meeting held on 29 October 2004</p> <p>Ethical opinion The members of the Committee present gave a favourable ethical opinion of the amendment on the basis described in the notice of amendment form and supporting documentation.</p> <p>Membership of the Committee The members of the Ethics Committee who were present at the meeting are listed below.</p> <p>Management approval Before implementing the amendment, you should check with the host organisation whether it affects their approval of the research.</p> <p>Statement of compliance (from 1 May 2004) The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.</p>	 <p>Guy's Research Ethics Committee 3rd Floor Nuffield Annexe Henriette Raphael House Guy's Hospital, London SE1 9RT</p> <p>Chair: Professor Steven H Sacks Administrator: Mrs Valerie Heard Direct line: 020 7188 2260 Email: valerie.heard@gstt.nhs.uk Website: www.corec.org.uk</p>
---	--

REC reference number: 99/09/05 Please quote this number on all correspondence

Yours sincerely,



Mrs Valerie Heard
Committee Administrator

Sub-committee: John Fowler, Dr Alison Mantell

An advisory committee to South East London Strategic Health Authority

APPENDIX B: CONSENT FORM FOR PARENTS

Institute of Psychiatry
Department of Psychology (at Guy's)
Health Psychology Section

Professor John & Weisman
SA PhD PSN10 DSI (1994)

5th Floor Thomas Guy House
Guy's Campus
London SE1 9RT
Tel: +44 (0) 20 7955 4965
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john.weisman@kcl.ac.uk

KING'S
College
LONDON

University of London

Dear Parent,

I am a researcher and lecturer in child development working at Guy's Hospital. I am carrying out a study looking at a whole range of children's development, from their understanding of friendships and relating to other people, including teachers, to their learning abilities. The aim of this project is to gain a greater understanding of the development of children's ability to understand others and relationships. I will also be looking at how children's learning is effected by this ability. I have discussed this project with ~~Pauline~~, your child's headteacher, who is very keen on this project happening in ~~St. James~~ Primary School. Your child may have already taken part in this study in previous years.

What will the actual project involve?

It will involve a research student, studying psychology at Guy's Hospital, coming in to your child's classroom and spending around one hour with each child. During this time they will use a range of materials, which are very child friendly, including toys, pictures and puzzles. These have been specially designed to assess children's skills of understanding others, paying attention and their general ability. In my experience children find these games fun and they do not put the child under any stress.

When the student has finished seeing your child, their name will not be used in the study and the majority of the results will be kept confidential. The only information that we would like to share is anything that would be useful for the class teacher, in other words, anything that relates to the child's general learning ability. You will, of course, also be able to ask anything about what your child has done in the assessment, and how they have got on. Our main aim is that we get a better idea of children's learning.

I would very much appreciate it if you would agree to allow your child to take part in this study as it will help us in our understanding of child development, and also help the school to understand your child's particular strengths and needs in the classroom.

Please inform your headteacher if you do not wish your child to take part in this study.

Many thanks for your time.

Yours sincerely,



Sheila Redfern
Researcher in Child Development

Version 2: January 2004

www.kcl.ac.uk

APPENDIX C: MSSB STORY STEMS, PROTOCOL, & CODING SCHEMES

Story Stems

STORY 1: SPILLED JUICE

Characters: Mum, Dad, Child 1, Child 2

Props: Table, chairs, cups, jug.

Layout: Four characters sitting on chairs around the table, each with a cup on the table.

The family is thirsty and they are going to have some juice. They are all sitting around the table drinking their juice when Child 1 gets up and reaches across the table (demonstrate child 1 doing this) and ‘Uh-oh, s/he spilled the juice all over the floor’. (Make Child 1 knock jug off table so it can be seen by the participant)

Now, can you show me and tell me what happens now?

Prompts

If nothing is done about the juice, ask what happens about Child 1 spilling the juice? Who cleans up? Why?

How do Mum and Dad feel about Child 1 spilling the juice? How come?

KI: Child makes unintentional accident in front of attachment figures? How will they respond?

SR: e.g., Juice is cleared up without conflict, with appropriate reaction from attachment figure.

STORY 2: MUM’S HEADACHE

Characters: Mum, Child 1, Child 3 (friend)

Props: Couch, smaller sofa chair, television

Layout: Mum and Child 1 on sofa watching TV. Smaller chair next to sofa.

For this story, Mum and Child1 are sitting on the couch watching TV (Mum turns to Child 1).

MUM: Oh, Child 1, I have such a headache! I just have to turn this TV off and go and lie down.

So Mum gets up and turns the TV off (make a clicking noise to indicate it is off).

MUM: Child 1, can you find something quiet to do for a while?

CHILD 1: OK Mum, I'll read a book.

So, Mum is lying down on the couch (put her there) whilst Child 1 is sitting in his/her chair (put Child 1 on chair) reading his/her book.

Then, there's a ring at the door (make a doorbell noise) and Child 1 goes to answer it (move Child 1 towards door) where Child 3 (friend) has appeared.

Look, it's Child 1's friend, Child 3.

CHILD 3: Hey, Child 1, there's this really good TV show on, can I come in and watch it with you?

Show me and tell me what happens now.

Prompts

If Child 1 does not turn on TV, Child 3 should say 'Oh come on! I know you'll really like it!'

If child 1 does turn on TV, have Mum wake up and say 'Oh! I have such a headache!'

Only intervene once, if request is ignored, allow the child to continue the story.

KI: The conflict between the mother, the attachment figure, and the friend. How is the conflict resolved?

SR: Compromise between needs of mother and friend, e.g., programme is videotaped, children watch elsewhere.

STORY 3: THREE'S A CROWD

Characters: Mum, Dad, Child 1, Child 3 (same-sex friend), Child 2.

Props: Ball

Layout: Mum and Dad are talking to a neighbour with back to child. Child 1 and Child 3 are playing ball in the centre.

For this story we are in the garden. Mummy and Daddy are standing here talking to the neighbour over the fence (show characters standing with their backs to the child characters).

Child 1 is playing with Child 3 (friend). They are playing with Child 3's new ball. Can you show me playing with the ball? (Allow child to show two children playing ball.)

Then, little sister/brother Child 2 runs out of the house and says:

CHILD 2: Can I play with you?

CHILD 1: Sure you can.

CHILD 3: No way! If you let your sister/brother play, I won't be your friend anymore! (directed at Child 1).

Can you show me and tell me what happens now?

Prompts

If Child 1 does not come to Child 2's defence:

CHILD 2: But I'm your sister/brother.

If Child 3's protest is ignored.

CHILD 3: But I said I don't want to play with your sister/brother.

KI: How will the child resolve the conflict between friend and sibling?

SR: Happy compromise between friend and sibling, e.g., letting sib play for a while, or in next game.

STORY 4: COOKING STORY/BURNT HAND

Characters: Mum, Dad, Child 1, Child 2

Props: Stove, table, chairs, pan

Layout: Daddy and Child 2 at table on chairs; Mummy and Child 1 are at the stove (pointing at them). Mummy is making dinner for everyone. Daddy and Child 2 (pointing at them) are sitting at the table.

MUM: We're going to have a really good supper but it's not quite ready yet. Don't get too close to the stove.

CHILD 1: Mmmmmm, that looks good. I don't want to wait. I'd like some now. (show Child 1 leaning over and knocking the pan on the floor.)

CHILD 1: Ow! I've burnt my hand! It hurts!

Now, can you show me and tell me what happens now.

Prompts

If no-one helps the child, ask what about Child 1's hand. S/he got burnt, does anyone do anything about his/her burnt hand?

What happened about the spilled food?

KI: Direct disobedience in relation to the attachment figure resulting in injury to the child.

SR: Parental acknowledgement of injury, and response to it. Reprimands should come after response to burnt hand.

STORY 5: LOST KEYS

Characters: Mum, Dad, Child 1

Props: None

Layout: Mum and Dad facing each other. Child 1 approaching them (equidistant from both).

Child 1 comes into the room and sees Mum and Dad looking at each other like this. Look at my face (examiner does an angry scowl)

MUM: (angrily): You lost my keys!

DAD: (angrily): No I didn't.

MUM: Yes you did, you always lose my keys!

DAD: Well, I didn't lose them this time.

Can you show me and tell me what happens now?

Prompts

What is going to happen about Mum and Dad's argument?

What happened about the keys?

KI: The child is face with parental conflict; how will s/he cope?

SR: Parents should be able to manage argument without child 'solving' it for them. Row should not escalate.

STORY 6: BATHROOM SHELF

Characters: Mum, Child1, Child 2

Props: Bathroom shelf, plaster, toilet, wash hand basin.

PART 1:

The girls/boys are playing together in the bathroom and Mum comes in.

MUM: Girls/boys, I have to go next door to give some things back to the neighbours, but I will be right back. Now, don't touch anything on the bathroom shelf while I am out (pointing at shelf with plaster)

CHILDREN: Ok Mum!

Mum goes to the neighbours (put Mum out of sight)

Now, Child 2 and Child 1 play some more and then Child 3 jumps up (show children playing)

CHILD 2: Ow! I cut my finger. I need a plaster!

CHILD 1: But Mum said not to touch anything on the bathroom shelf.

CHILD 2: But my finger's bleeding.

Show me and tell me what happens now.

Prompts

If the child does not get a band aid or if nothing is done about finger:

CHILD 2: My finger is bleeding.

If subject wants to bring Mum back immediately.

No, she is not back yet.

PART 2

Bring the Mum back or the child may initiate this.

MUM: Hello girls/boys, I'm back.

What happens now?

Prompts

If the subject does not refer to the band aid on the finger.

MUM: What's that on your finger?

KI: The situation calls for the child to transgress attachment figure's instructions. Will the child assert autonomy and how will the attachment figure react?

SR: Child should acknowledge going against rules, with mother accepting justification.

STORY 7: BURGLAR IN THE DARK

Characters: Mum, Dad, Child 1

Props: Couch, bed

Layout: Mum and Dad on couch downstairs. Child 1 on sofa bed lying down upstairs.

It's night time and Mum and Dad are downstairs (show Mum and Dad on couch) Upstairs, Child 1 is in his/her room in bed, and suddenly the lights go out and Child 1 hears a sound (scratch the underside of the table to create noise).

CHILD 1: (gasps and then pauses) It's a burglar! It's a thief! (in a soft creepy voice)

Now, can you show and tell me what happens now?

KI: How will the child cope with sense of vulnerability when alone? Will they need to approach attachment figure, and how will figure react?

SR: Child should be able to cope appropriately; if proximity sought, parents should be available.

STORY 8: EXCLUSION

Characters: Mum, Dad, Child 1

Props: Couch

Layout: Mum and Dad on sofa, Child 1 opposite them.

DAD/MUM (same sex parent): Child 1, Mum/Dad and I would like to spend some time alone together. Will you go up to your room and play with your toys. Please shut the door so it's quiet.

Now, Mum and Dad hug each other.

Can you show me and tell me what happens now.

Prompts

If child goes back to his/her parents.

MUM/DAD: We asked for some time alone.

How does Child 1 feel? How come? Is Child 1 angry with anyone? How come?

KI: How does child cope with sense of exclusion following the parent's request?

SR: Child should comply with parents' expressed need to be alone. May seek reunion.

END

Thank you very much. You have told some great stories.

GENERAL NOTES ON ADMINISTRATION

1 In the protocol, every time Child 1, Child 2 or Child 3 is referred to, this must be replaced with the name(s) that the child wants to use (or in some cases you decide to use at the beginning).

Remember:

Child 1 = older brother/sister, protagonist

Child 2 = younger brother/sister

Child 3 = same sex friend

2 In terms of setting stories up, the examiner should feel free to get the child to cooperate, especially in the stories involving more props (e.g. Bathroom shelf, spilled juice). The child should also be involved in the clearing away of props between stories.

3 The examiner must use his/her discretion for closing a child's narratives. Where appropriate, an examiner should ask 'is that the end of the story?' or 'does anything else happen?', but only once a story seems to have been resolved, or if the child is very stuck or distressed.

4 Non-directive prompts should be used at the examiner's discretion for clarification. If anything seems unclear or a child is predominantly relating the story non-verbally using actions rather than words, the examiner should ask 'what is happening here?'.

5 For transcription purposes, the examiner should try to repeat a child's narrative as s/he tells the story, especially if the child's diction is poor. Try to repeat sentences/segments rather than short phrases or else it will interrupt the flow.

6 The prompts for each narrative should be adhered to. In some stories (Headache, 3s a crowd), the prompts are more of an intervention in the subject's narrative, and need to come as soon as the subject seems to have ignored the stem constraint. The other prompts can come at the end.

Storysystem Coding Scheme I: Representations of Mothers

(from Oppenheim, Emde, Warren, 1997)

Code according to the presence or absence of the following themes throughout the narrative.

Positive Representations

1. *Protective/Caregiving (P/C)*: The child is protected from actual/possible danger. Example: Mother says “be careful, the stove’s hot”. The child is taken care of, soothed, fed or emotionally/physically comforted. Example: Dad puts a plaster on child; Mum checks if there is a burglar.
2. *Affectionate (A)*: The child is kissed, hugged, complimented or interacted warmly with. Example: Upon reunion, child is kissed by parents.
3. *Helpful (H)*: Child is helped/seeks help with a task. Example: Mother helps child clean up juice.

Negative Representations

1. *Verbal Aggression (VA)*: Mother/Father/Other is described as verbally critical, punitive, shaming or blaming towards the child. Threatening, attacking, or humiliating. Example: Mother says “Shut up!”; “if you don’t stop, I’ll kill you.”

NB: Code indication of being cross/angry under here.

2. *Physical Aggression (PA)*: Any form of physical attack upon the child.

Disciplinary Representations

1. *Discipline (D)*: An authority figure disciplines the child. Example, “If you don’t clean up, you’ll go to your room.”
2. *Prohibition (PH)*: child is set limits, stopped from doing something.
Example: The child is told they can only sit on the chair for a limited time and then must swap with their brother/sister. Child told off.
3. *Conflict/Confrontation between child and adult dolls (C)* : Evidence of conflict arising between Mum and child, where no initial conflict was presented. It may be shown by: verbal arguments/disputes between parent and child, child becoming confrontational in response to maternal requests of discipline. Escalation in conflict where it already existed.

The presence or absence of each of the above categories in each narrative is coded. More than one code may be present, but only one code per category regardless of the number of times a category may occur.

Storysystem Coding Scheme II: Quality Dimensions

Key Issue (KI): This dimension assesses the extent to which the child acknowledges the key conflict/dilemma embedded in the storysystem. This is not based on whether the story is left unresolved as this feature is taken into account by Story Resolution (SR) and coded separately.

Low KI scores are reflected by stories where the child shows little/no engagement with the task (often prompted by researcher, says “I don’t know” at least more than once) or there is little/no evidence of the central conflict/dilemma.

High KI scores are given to stories which reflect the central conflict/dilemma.
NB: It is not necessary for these stories to have a conclusion/ ending/ resolution.

Story Resolution (SR): This assesses the extent to which a resolution is provided within the context of the focal dilemma embedded in the storysystem.

KI and SR are rated on a four point scale:

- | | |
|-----------------------------------|----------------------------|
| 1 = No evidence of KI at all; | 1 = Completely unresolved; |
| 2 = A little evidence of KI; | 2 = A little unresolved; |
| 3 = Somewhat more evidence of KI; | 3 = Somewhat resolved; |
| 4 = KI completely evident; | 4 = Completely resolved; |

Bizarre/Atypical (BA): The child develops a narrative containing features which do not appear to make sense in relation to the storysystem. The defining feature is that the response is incongruent to the story, introducing a sense of bewilderment, bizarre behaviours and disorganisation. Scores less than 3 indicate the presence of negative emotional/physical behaviour.

Each story is rated on a 4 point scale:

- 1 = Atypical/completely bizarre;
- 2 = Moderately atypical/several bizarre elements;
- 3 = A little atypical/ a bizarre element;
- 4 = Typical/not bizarre.

Narrative Coherence (NC): This assesses the quality of narrative and the ease with which the story or sequence of events can be followed. Specifically, does the story have a beginning, middle and an end? Are there shifts in the story line which disturb the flow?

This is rated on a 4 point scale using the following guidelines.

1 = Completely incoherent:

Sequence of events presented are totally disjointed and display illogical shifts in the narrative and there is no clear sense of a beginning, a middle and end.

2 = Some incoherence:

There is some evidence of a story line, but illogical shifts are still present. The story may lack a beginning, middle or an end.

3 = Moderate incoherence:

The sequence of events presented provide a story line, but there are illogical shifts and no marked ending.

4 = Completely coherent:

The events in the story follow a beginning, middle and end format and are related to the storysystem.

Story Stem Coding Sheet

Name:

Class:

Case Number:

Coded By:

Relationship Presentations	Positive Presentations			Negative Presentations		Disciplinary Presentations		
Content Variables	C	A	H	VA	PA	PH	D	AC
Story Stem								
1. Spilled Juice								
2. Mum's Headache								
3. Three's a Crowd								
4. Burnt Hand								
5. Lost Keys								
6. Bathroom Shelf								
7. Burglar								
8. Exclusion								
TOTAL:								

KEY:

Positive Presentations:
C = Protective/Caregiving
A = Affectionate
H = Helpful

Negative Presentations:
VA = Verbal Aggression
PA = Physical Aggression

Disciplinary Presentations:
D = Discipline
PH = Prohibition
AC = Conflict/Confrontation

Variables	KI	SR	BA	NC
Story Stem				
1. Spilled Juice				
2. Mum's Headache				
3. Three's a Crowd				
4. Burnt Hand				
5. Lost Keys				
6. Bathroom Shelf				
7. Burglar				
8. Exclusion				
TOTAL:				

KEY:

KI = Key Issue
SR = Story Resolution
BA = Bizarre/Atypical
NC = Narrative Coherence

APPENDIX D: SAMPLE TRANSCRIPTS AND CODING SHEETS

Transcript 51:

Interview 51

Sister: Danjee

Friend: Sarah

SPILLED JUICE

Then all the juice fell out

All the juice fell out?

Yes

Did someone clean the juice up?

Yes

Who cleans it up?

Mum

Mum, and how does mum feel about Yan-Yee spilling the juice?

Sad

Sad, how come?

Because, umm, Yan-Yee had fell the juice down

And how does dad feel?

Grumpy

Grumpy, ok. And what happens at the end of the story?

They feel happy

They all feel happy.

MUM'S HEADACHE

Yes

But mum says, "Oh, what about my head?" What does Yan-Yee say now?

I think not because my mummy

What do they do instead?

They played

Where did they play?

In Yan-Yee's bedroom

Is that the end of the story?

Yes

THREE'S A CROWD

Don't let her play then

You won't let your sister play

No

So does your sister go off.

Yes

But she says, "But I'm your sister, please let me play." What do you think Yan-Yee would say now?

Got any ideas?

No

Who do you think she will want to play with now

Friend

Her friend, is that the end of the story?

BURNT HAND

Maybe Yan-Yee has too put a bandage on her hand on her hand

Yes. She says, "Ow, my hand hurts," does anyone help her?

Go to the hospital

Who takes her to the hospital?

Her mum and dad

Her mum and dad. And what happens about the spilled food?

The mum take her to the doctor and dad had to clean it up

And what happens at the end of the story?

Then they are happy, then they are happy again

LOST KEYS

Her mum had a headache again

Her mum had a headache again, so what happens?

She had to go to lie down again

What happens about mummy's and daddy's argument?

Just mum be cross

Just mum be cross

And dad was grumpy

And dad's grumpy. And what about the keys, what happens about the keys?

Her mum had to, mum had to try to find them

And does she find them?

No

And what happens at the end of the story?

Then mum found

Is that it?

Yes

BATHROOM SHELF

Yan-Yee had to try and found a plaster for danjee

And did she find one?

No

But there's one up here. She finds one, yes?

Yes

Ok. And does she get it even though mum said not to touch anything on the bathroom shelf? Does she get the plaster or not?

No

Ok, but her finger is bleeding, does she just leave it?

Yes

Mums coming back. The mum comes in and says, "Hello girls?" What happens now?

Then she tell danjee touched something and she hurt herself and her finger and it's bleeding now

Yan-ye tells Mummy that? And what does Mummy say?

Mummy says, "I said not to touch anything in the bathroom," and mum gets grumpy now

Is that the end of the story?

Yes

BURGLAR

She went downstairs and tell mum that

What does she say to them?

"I heard a noise when I was sleeping"

And what do mummy and daddy say?

They say,

What do they do?

And then mum goes upstairs to see what noise, what was wrong with them

And do they find anything?

No

And is that the end of the story?

Yes

EXCLUSION

Then they went out

Sorry

Then they, mum and dad go out

They go out leaving Yan-Yee on her own.

Yan-Yee play her toy and then mum and dad will buy something for Yan-Yee

They buy something for Yan-Yee

Yes

How does Yan-Yee feel when she is told to go?

Happy

Happy, how come?

Because she likes playing with toys

She likes playing toys, is she angry with anyone?

No.

So she does mind playing being left alone?

No

Story Stem Coding Sheet

Name:

Class:

Case Number: 51

Coded By: SR

Relationship Presentations	Positive Presentations			Negative Presentations		Disciplinary Presentations		
	C	A	H	VA	PA	PH	D	AC
Content Variables:								
Story Stem								
1. Spilled Juice			1					
2. Mum's Headache								
3. Three's a Crowd								
4. Burnt Hand	1		1					
5. Lost Keys								
6. Bathroom Shelf							1	
7. Burglar								
8. Exclusion								
TOTAL:	3			0			1	

KEY:

Positive Presentations:
C = Protective/Caregiving
A = Affectionate
H = Helpful

Negative Presentations:
VA = Verbal Aggression
PA = Physical Aggression

Disciplinary Presentations:
D = Discipline
PH = Prohibition
AC = Conflict/Confrontation

Variables	KI	SR	BA	NC
Story Stem				
1. Spilled Juice	3	4	4	3
2. Mum's Headache	4	4	4	4
3. Three's a Crowd	4	4	4	4
4. Burnt Hand	4	4	4	4
5. Lost Keys	4	3	4	4
6. Bathroom Shelf	4	4	4	4
7. Burglar	3	3	4	4
8. Exclusion	3	3	4	4
TOTAL:	29	29	32	31

KEY:

KI = Key Issue
SR = Story Resolution
BA = Bizarre/Atypical
NC = Narrative Coherence

Transcript 86:

- 86

Spilt Juice

The three of them all over the place.

Prompt: The juice has gone all over the place? What is going to happen? What are they going to do?

They are going run away enough state

Prompt: Alright, you make them do that then.

Oh (bangs toys)

Prompt: So they are just going to run away and leave the juice?

(Banging)

Prompt: So now they have all gone upstairs, and they are just leaving the juice are they?

They're not going away. There was no more juice.

Prompt: No more juice.

Then they go downstairs, with the juice. Is ...

Prompt: Tell me what happened about the juice.

They sent, all over there. Hello.

Prompt: So they have all gone downstairs again. And what's happened about the juice?

They're going to make it again.

Prompt: They're going to make some more, who made some more?

The dad.

Prompt: And did they clean up the juice?

Yes.

Prompt: Who cleaned it up? Who cleaned up the juice? Jimmy? And how did they feel about Angelica spilling the juice?

Bit angry, all ever after.

Prompt: And they all lived happily ever after? That good.

Mum's headache

Yes.

Prompt: So does Angelica say yes?

Yes.

Prompt: And they go and watch TV? But what about mum's headache?

And they come and ... then the mum knock them ... and then the mum left ... and then they go here.

Prompt: So they don't watch the TV show?

And then they hide.

Prompt: Oh they are hiding from mummy are they?

Yes. Oh, I can't put this anywhere.

Prompt: So they are hiding from mum?

Yeah.

Prompt: And what's going to happen next?

Mummy. Look. Move this one and ... what does that do? And hide.

Prompt: And what does mummy think?

And they go down the stairs, and this, and mess all up the juice and the juice is gone.

Prompt: What is mummy doing with Gemma?

And he look, he missup.

Prompt: What has happened to all the furniture? Who knocked over all the furniture?

Mummy.

Prompt: Mummy did?

Yes. We hide. They want they undi, owe. They you really push this?

Prompt: I don't think so.
Banging.
Prompt: Now is it time for the next story?
Yes.

Three's a crowd

They go to the kitchen. They got their young, they cook this.
Prompt: They're cooking? What are they cooking?
Can I play some? Yes.
Prompt: But [friend] says that she won't be Angelica's friend anymore if she lets [brother] play. What's Angelica going to do? ... What do you think? Oh dear, [friend] seems to have attacked them. What's going to happen next?
They are going to fight.
Prompt: They are going to fight?
Yes.
Prompt: Who is going to fight?
Ow ow ow
Prompt: All three of them?
Then the mummy says "don't fight". I cryyyesh.
Prompt: What is mummy going to do now? What is she saying?
Undergounnd. Sit down, eat. Umberumum. Lie down and sleep.
Prompt: So mummy told them to stop fighting did she?
Undergrnm ... im gone jimsem. I want to go to the toilet. Brrrough ... Prash ...
Riboooo ...

Burnt hand

It goes back to the bathroom and it dis... f... for a plaster.
Prompt: So Angelica goes up to the bathroom. What about the spilt food?
The spilt food. I don't know.
Prompt: Do you think that they are going to make some more or are they just going to leave it there and get hungry?
????
Prompt: What do you think they are going to do about the food?
They're going to make it again.
Prompt: Who's going to make it again.
My mum.
Prompt: Your mum, good, and how is she going to feel?
She feels angry.
Prompt: Who is she angry with?
Noises!
Prompt: So she is angry with Angelica. Right.

Lost keys

Noises!
Prompt: What?
I don't know.
Prompt: What do you think might happen? What is Angelica going to do, cause she is watching them.
I don't know. I don't know. I don't know.
Prompt: Well what do you think is going to happen about the argument?
I don't know. I don't know.
Prompt: Why don't you make something up?

I don't know!

Cut finger

They put a plaster.

Prompt: Angelica puts a plaster on?

Arhhh.

Prompt: Now mum's coming back. She says "hello children I'm back". What happens now?

(no response)

Prompt: Mum says what's that on your finger [brother]?

I has is another plaster.

Prompt: It's a plaster, yes. What is mum going to think because she said not to touch anything on the bathroom shelf. What will she think?

I think she's going to beat tem up.

Noises in the night

Noises?

Prompt: So she is going downstairs. What is she doing?

Nothing.

Prompt: She is looking for the burglar is she?

Yes.

Prompt: And there is nothing there. So what is she going to do now.

She goes to bed now.

Exclusion

They sit.

Prompt: What's happening?

They sit. And the people, who see, dad sit.

Prompt: So she goes down to look at them to see what they are doing.

Dad hide, they hide and hide and hiding.

Prompt: So she is hiding cause dad saw her?

Yes. Mamma the chair's there, not there, but I can't see. And the table there.

Story Stem Coding Sheet

Name: Argdica
 Class: _____
 Case Number: 86
 Coded By: SR

Relationship Presentations	Positive Presentations			Negative Presentations		Disciplinary Presentations		
Content Variables	C	A	H	VA	PA	PH	D	AC
Story Stem								
1. Spilled Juice			1	2				
2. Mum's Headache					1		1	1
3. Three's a Crowd								
4. Burnt Hand								0
5. Lost Keys								
6. Bathroom Shelf					1			
7. Burglar								
8. Exclusion								
TOTAL:		1			2		2	

KEY:

Positive Presentations:
 C = Protective/Caregiving
 A = Affectionate
 H = Helpful

Negative Presentations:
 VA = Verbal Aggression
 PA = Physical Aggression

Disciplinary Presentations:
 D = Discipline
 PH = Prohibition
 AC = Conflict/Confrontation

Variables	KI	SR	BA	NC
Story Stem				
1. Spilled Juice	2	3	3	3
2. Mum's Headache	2	1	2	2
3. Three's a Crowd	2	1	2	2
4. Burnt Hand	2	1	2	2
5. Lost Keys	1	3	3	1
6. Bathroom Shelf	1	3	3	1
7. Burglar	1	2	3	1
8. Exclusion	1	1	1	1
TOTAL:	12	15	19	13

KEY:

KI = Key Issue
 SR = Story Resolution
 BA = Bizarre/Atypical
 NC = Narrative Coherence

APPENDIX E: PEER POPULARITY RESPONSE SHEET

RESEARCH PROJECT

Peer Nominations

NAME:

CLASS:

NUMBER:

NUMBER OF SIBLINGS:

List of children you like to play with most....who is most fun to be with?

1.....

2.....

3.....

List of children you don't like to play with...who do you have fights with?

1.....

2.....

3.....

APPENDIX F: PEER REPRESENTATION QUESTIONNAIRE

CHILD ID _____

Here are some stories about children your age. I want you to read them and pick one of the three choices that are listed after them. There are no right or wrong choices, so please be as honest as you can. I want you to pick the choice that you think most likely happens to you, and circle the letter before it.

1) You are playing in the playground. You hear someone shout your name. When you turn around a ball hits you.

- A. He threw the ball at you on purpose.
- B. He tried to warn you before you got hit.
- C. You were hit by accident.

2) You have finished taking a test, and you get up to go to the toilet. When you get back to your desk, your test is gone.

- A. Someone gave it to the teacher for you.
- B. It fell on the floor.
- C. Someone stole it to get you in trouble.

3) You tell a joke and another classmate laughs.

- A. She was laughing at something else.
- B. She was laughing to make you think your joke was stupid.

C. She was laughing to let you know your joke was funny.

4) You are walking in a shopping centre and you drop a five pound note. When you go back to look for the money, another child is picking it up off the floor.

A. He picked it up in order to keep it for himself.

B. He picked it up to give it back to you.

C. He did not know it was yours.

5) You are in a cinema. You leave your seat for a short time. When you come back, another child is sitting in your seat.

A. That child wanted to sit near you.

B. That child did not know anyone had been sitting there earlier.

C. That child stole your seat to make you leave.

6) You are in a toy shop looking at toys. Another child walks over and starts to play with the toy you want to play with.

A. She did not know that was the toy you wanted.

B. She picked it up first on purpose before you could get a chance to play with it.

C. She wanted to show you how the toy worked.

APPENDIX G: STRENGTHS AND DIFFICULTIES QUESTIONNAIRE & CODING

Strengths and Difficulties Questionnaire		T ^{3/4}		
For each item, please mark the box for Not True, Somewhat True or Certainly True. It would help us if you answered all items as best you can even if you are not absolutely certain or the item seems daft! Please give your answers on the basis of the child's behaviour over the last six months.				
Child's Name	Male/Female			
Date of Birth				
	Not True	Somewhat True	Certainly True	
Considerate of other people's feelings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Restless, overactive, cannot stay still for long	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Often complains of headaches, stomach-aches or sickness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Shares readily with other children (treats, toys, pencils etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Often has temper tantrums or hot tempers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Rather solitary, tends to play alone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Generally obedient, usually does what adults request	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Many worries, often seems worried	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Helpful if someone is hurt, upset or feeling ill	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Constantly fidgeting or squirming	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Has at least one good friend	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Often fights with other children or bullies them	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Often unhappy, down-hearted or tearful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Generally liked by other children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Easily distracted, concentration wanders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Nervous or clingy in new situations, easily loses confidence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Kind to younger children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Often argumentative with adults	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Picked on or bullied by other children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Often volunteers to help others (parents, teachers, other children)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Can stop and thinks things over before acting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Can be spiteful to others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Gets on better with adults than with other children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Many fears, easily scared	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Sees tasks through to the end, good attention span	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do you have any other comments or concerns?				
Please turn over - there are a few more questions on the other side				

Overall, do you think that your child has difficulties in one or more of the following areas: emotions, concentration, behaviour or being able to get on with other people?

No	Yes - minor difficulties	Yes - definite difficulties	Yes - severe difficulties
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If you have answered "Yes", please answer the following questions about these difficulties:

- How long have these difficulties been present?

Less than a month	1-5 months	6-12 months a year	Over
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- Do the difficulties upset or distress your child?

Not at all	Only a little	Quite a lot	A great deal
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- Do the difficulties interfere with your child's everyday life in the following areas?

	Not at all	Only a little	Quite a lot	A great deal
HOME LIFE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FRIENDSHIPS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LEARNING	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LEISURE ACTIVITIES	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- Do the difficulties put a burden on you or the family as a whole?

Not at all	Only a little	Quite a lot	A great deal
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Signature

Date

Mother/Father/Other (please specify:)

Thank you very much for your help

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Strengths and Difficulties Questionnaire

For each item, please mark the box for Not True, Somewhat True or Certainly True. It would help us if you answered all items as best you can even if you are not absolutely certain or the item seems daft! Please give your answers on the basis of the child's behaviour over the last six months.

Child's Name

ID 22

Male/Female

Date of Birth

	Not True	Somewhat True	Certainly True
Considerate of other people's feelings	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Restless, overactive, cannot stay still for long	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often complains of headaches, stomach-aches or sickness	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shares readily with other children (treats, toys, pencils etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Often has temper tantrums or hot tempers	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rather solitary, tends to play alone	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Generally obedient, usually does what adults request	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Many worries, often seems worried	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Helpful if someone is hurt, upset or feeling ill	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Constantly fidgeting or squirming	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Has at least one good friend	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Often fights with other children or bullies them	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often unhappy, down-hearted or tearful	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Generally liked by other children	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Easily distracted, concentration wanders	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nervous or clingy in new situations, easily loses confidence	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kind to younger children	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Often argumentative with adults	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Picked on or bullied by other children	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often volunteers to help others (parents, teachers, other children)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Can stop and thinks things over before acting	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Can be spiteful to others	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Gets on better with adults than with other children	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Many fears, easily scared	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sees tasks through to the end, good attention span	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Signature

Pat Miller

Date

1-4-02

Parent/Teacher/Other (please specify:)

Thank you very much for your help

Scoring the Informant-Rated Strengths and Difficulties Questionnaire

The 25 items in the SDQ comprise 5 scales of 5 items each. It is usually easiest to score all 5 scales first before working out the total difficulties score. Somewhat True is always scored as 1, but the scoring of Not True and Certainly True varies with the item, as shown below scale by scale. For each of the 5 scales the score can range from 0 to 10 if all 5 items were completed. Scale score can be prorated if at least 3 items were completed.

<u>Prosocial Scale</u>	Not True	Somewhat True	Certainly True
Considerate of other people's feelings	0	1	2
Shares readily with other children	0	1	2
Helpful if someone is hurt, upset or feeling ill	0	1	2
Kind to younger children	0	1	2
Often volunteers to help others	0	1	2

<u>Hyperactivity Scale</u>	Not True	Somewhat True	Certainly True
Restless, overactive, cannot stay still for long	0	1	2
Constantly fidgeting or squirming	0	1	2
Easily distracted, concentration wanders	0	1	2
Thinks things out before acting	2	1	0
Sees tasks through to the end, good attention span	2	1	0

<u>Emotional Symptoms Scale</u>	Not True	Somewhat True	Certainly True
Often complains of headaches, stomach-aches ...	0	1	2
Many worries, often seems worried	0	1	2
Often unhappy, downhearted or tearful	0	1	2
Nervous or clingy in new situations ...	0	1	2
Many fears, easily scared	0	1	2

<u>Conduct Problems Scale</u>	Not True	Somewhat True	Certainly True
Often has temper tantrums or hot tempers	0	1	2
Generally obedient, usually does what ...	2	1	0
Often fights with other children or bullies them	0	1	2
Often lies or cheats	0	1	2
Steals from home, school or elsewhere	0	1	2

<u>Peer Problems Scale</u>	Not True	Somewhat True	Certainly True
Rather solitary, tends to play alone	0	1	2
Has at least one good friend	2	1	0
Generally liked by other children	2	1	0
Picked on or bullied by other children	0	1	2
Gets on better with adults than with other children	0	1	2

The Total Difficulties Score:

is generated by summing the scores from all the scales except the prosocial scale. The resultant score can range from 0 to 40. The total score can be prorated if at least 12 of the relevant 20 items were completed.

Interpreting Symptom Scores and Defining "Caseness" from Symptom Scores

The provisional bandings shown below have been chosen so that roughly 80% of children in the community are normal, 10% are borderline and 10% are abnormal. In a study of a high risk sample where false positives were not a major concern, you could identify likely "cases" by a borderline or high score on one of the total difficulties scales. In a study of a low risk sample where it was more important to reduce the rate of false positives, you could identify likely "cases" by a high score on one of the total difficulties scales.

	<u>Normal</u>	<u>Borderline</u>	<u>Abnormal</u>
<u>Parent Completed</u>			
Total Difficulties Score	0 - 13	14 - 16	17 - 40
Emotional Symptoms Score	0 - 3	4	5 - 10
Conduct Problems Score	0 - 2	3	4 - 10
Hyperactivity Score	0 - 5	6	7 - 10
Peer Problems Score	0 - 2	3	4 - 10
Prosocial Behaviour Score	6 - 10	5	0 - 4

Teacher Completed

Total Difficulties Score	0 - 11	12 - 15	16 - 40
Emotional Symptoms Score	0 - 4	5	6 - 10
Conduct Problems Score	0 - 2	3	4 - 10
Hyperactivity Score	0 - 5	6	7 - 10
Peer Problems Score	0 - 3	4	5 - 10
Prosocial Behaviour Score	6 - 10	5	0 - 4

Generating and Interpreting Impact Scores

When using a version of the SDQ that includes an "Impact Supplement", the items on overall distress and social impairment can be summed to generate an impact score. Each item rated "Not at all" or "Only a little" is scored as 0, each item rated as "Quite a lot" is scored 1, and each item rated as "A great deal" is scored 2. The total impact score for the parent-rated versions can range from 0 to 10 since there are five relevant items: distress, impairment in home life, impairment in friendships, impairment in classroom learning, and impairment in leisure activities. For teacher-rated versions, by contrast, the total impact score can only range from 0 to 6 since there are only three relevant items: distress, impairment in friendships and impairment in classroom learning. (Responses to the questions on chronicity and burden are not included in the impact score.) When informants have answered "no" to the first question on the impact supplement (i.e. when they do not perceive the child as having any emotional or behavioural difficulties), they are not asked to complete the questions on resultant distress or impairment; the impact score is automatically scored zero in these circumstances.

Whether rated by parents or teachers, a total impact score of 2 or more is abnormal, while a score of 1 is borderline and a score of 0 is normal.

Robert Goodman, November 1997

Name of Child: _____

Date: _____

Parent Rating Scale

	Dubious	Definite	Child's Score
Total Score	14-16	> 16	<input type="checkbox"/>
Hyperactivity	6	>6	<input type="checkbox"/>
Conduct problems	3	>3	<input type="checkbox"/>
Emotional problems	4	>4	<input type="checkbox"/>
Peer Relationship problems	3	>3	<input type="checkbox"/>
Prosocial	5	<5	<input type="checkbox"/>

Teacher Rating Scale

	Dubious	Definite	Child's Score
Total Score	12-15	> 15	<input type="checkbox"/>
Hyperactivity	6	>6	<input type="checkbox"/>
Conduct problems	3	>3	<input type="checkbox"/>
Emotional problems	5	>4	<input type="checkbox"/>
Peer Relationship problems	4	>3	<input type="checkbox"/>
Prosocial	5	<5	<input type="checkbox"/>

APPENDIX H: Pianta Student-Teacher Relationship Questionnaire & Coding

Case No: _____ Sex: _____ Child's name: _____ Date test was given: ____/____/____
 School ID: _____ Researcher: _____ Coded by: _____ Coding checked by: _____

Student-Teacher Relationship Scale

Robert C. Pianta

Please reflect on the degree to which each of the following statements currently applies to your relationship with this child. Using the scale below, circle the appropriate number for each item.

Definitely does not apply	Not really	Neutral, not sure	Applies somewhat	Definitely applies
1	2	3	4	5

	1	2	3	4	5		For office use only
I share an affectionate, warm relationship with this child						P01	
This child and I always seem to be struggling with each other						P02	
If upset, this child will seek comfort from me						P03	
This child is uncomfortable with physical affection or touch from me						P04	
This child values his/her relationship with me						P05	
This child appears hurt or embarrassed when I correct him/her						P06	
This child does not want to accept help when he/she needs it						P07	
When I praise this child, he/she beams with pride						P08	
This child reacts strongly to separation from me						P09	
This child spontaneously shares information about himself/herself						P10	
This child is overly dependent on me						P11	
This child easily becomes angry at me						P12	
This child tries to please me						P13	
This child feels that I treat him/her unfairly						P14	
This child asks for my help when he/she really does not need help						P15	
It is easy to be in tune with what this child is feeling						P16	
This child sees me as a source of punishment and criticism						P17	
This child expresses hurt or jealousy when I spend time with other children						P18	
This child remains angry or is resistant after being disciplined						P19	
When this child is misbehaving, he/she responds well to a look or my tone of voice						P20	
Dealing with this child drains my energy						P21	
I've noticed this child copying my behavior or ways of doing things						P22	
When this child arrives in a bad mood, I know we are in for a long and difficult day						P23	
This child's feelings toward me can be unpredictable or can change suddenly						P24	
Despite my best efforts, I am uncomfortable with how this child and I get along						P25	
I often think about this child when not at work						P26	
This child whines or cries when he/she wants something from me						P27	
This child is sneaky or manipulative with me						P28	
This child openly shares his/her feelings and experiences with me						P29	
My interactions with this child make me feel effective and confident						P30	

Case No. 22 Sex: _____ Child's name: _____ Date test was given: _____
 School ID: _____ Researcher: _____ Coded by: _____ Coding checked by: _____

Student-Teacher Relationship Scale

Robert C Pianta

Please reflect on the degree to which each of the following statements currently applies to your relationship with this child.
 Using the scale below, circle the appropriate number for each item.

Definitely does not apply	Not really	Neutral, not sure	Applies somewhat	Definitely applies
1	2	3	4	5

For office
use only

I share an affectionate, warm relationship with this child	1	2	3	4	5	P01	
This child and I always seem to be struggling with each other	1	2	3	4	5	P02	
If upset, this child will seek comfort from me	1	2	3	4	5	P03	
This child is uncomfortable with physical affection or touch from me	1	2	3	4	5	P04	
This child values his/her relationship with me	1	2	3	4	5	P05	
This child appears hurt or embarrassed when I correct him/her	1	2	3	4	5	P06	
This child does not want to accept help when he/she needs it	1	2	3	4	5	P07	
When I praise this child, he/she beams with pride	1	2	3	4	5	P08	
This child reacts strongly to separation from me	1	2	3	4	5	P09	
This child spontaneously shares information about himself/herself	1	2	3	4	5	P10	
This child is overly dependent on me	1	2	3	4	5	P11	
This child easily becomes angry at me	1	2	3	4	5	P12	
This child tries to please me	1	2	3	4	5	P13	
This child feels that I treat him/her unfairly	1	2	3	4	5	P14	
This child asks for my help when he/she really does not need help	1	2	3	4	5	P15	
It is easy to be in tune with what this child is feeling	1	2	3	4	5	P16	
This child sees me as a source of punishment and criticism	1	2	3	4	5	P17	
This child expresses hurt or jealousy when I spend time with other children	1	2	3	4	5	P18	
This child remains angry or is resistant after being disciplined	1	2	3	4	5	P19	
When this child is misbehaving, he/she responds well to a look or my tone of voice	1	2	3	4	5	P20	
Dealing with this child drains my energy	1	2	3	4	5	P21	
I've noticed this child copying my behavior or ways of doing things	1	2	3	4	5	P22	
When this child arrives in a bad mood, I know we are in for a long and difficult day	1	2	3	4	5	P23	
This child's feelings toward me can be unpredictable or can change suddenly	1	2	3	4	5	P24	
Despite my best efforts, I am uncomfortable with how this child and I get along	1	2	3	4	5	P25	
I often think about this child when not at work	1	2	3	4	5	P26	
This child whines or cries when he/she wants something from me	1	2	3	4	5	P27	
This child is sneaky or manipulative with me	1	2	3	4	5	P28	
This child openly shares his/her feelings and experiences with me	1	2	3	4	5	P29	
My interactions with this child make me feel effective and confident	1	2	3	4	5	P30	

Scoring guide for the Student-Teacher Relationship Scale
Robert C. Pianta Ph.D.

The Student Teacher Relationship Scale (STRS) is designed to assess a teacher's perceptions of his/her feelings with a given student. The 30 items on the STRS assess a teacher's feelings about their relationship with a student, the student's interactive behaviour with the teacher, and the teacher's beliefs about the student's feelings toward the teacher. The scale is administered by simply having the teacher complete the items as indicated on the directions printed on the scale. The scale is scored by summing groups of items corresponding to factor-based subscales and computing a total score.

In the Friendship/Hard to Manage projects we will use the three factor-based subscale which is more simple to use.

The three factor based subscales are:

Conflict/Anger	(analogous to the same scale in the five-factor solution)
Closeness	(combining the Warmth and Open Communication scales from the five-factor solution)
Dependency	(analogous to the same scale on the five-factor solution).

To score the STRS subscales corresponding to the three-factor solution, compute the sum of the items noted below for each subscale.

Conflict/Anger:	items 2, 12, 14, 17, 19, 20 (reversed), 21, 23, 24, 25, 27, 28
Closeness:	items 1, 3, 4 (reversed), 5, 8, 10, 13, 16, 22, 29, 30
Dependency:	items 9, 11, 15, 18
Total Scale Score:	reverse items 2, 4, 6, 7, 9, 11, 12, 14, 15, 17, 18, 19, 21, 23, 24, 25, 26, 27, 28 and sum with remaining items

Alpha reliabilites are as follows:

STRS Total: .91

Conflict: .93

Closeness: .86

Dependency: .68

To date, validity data are available for both the five and three factor solutions, however it is recommended that the five factor solution be used in research settings because the two scales contained within the "Closeness" scale appear to have different meaning/correlates.

APPENDIX I: SECOND ORDER ToM TEST: HAPPÉ'S STRANGE STORIES, SAMPLE TRANSCRIPT & CODING SHEET

- William is a very untidy boy. One day his mother comes into his bedroom, and it is even more messy than usual! There are clothes, toys, and comics everywhere. William's mother says to William, "This room is a pig sty!"

Is it true that William keeps pigs in his room?

Why does William's mother say this?

- Brian is always hungry. Today at school it is his favourite meal - sausages and beans. He is a very greedy boy, and he would like to have more sausages than anybody else, even though his mother will have made him a lovely meal when he gets home! But everyone is allowed two sausages and no more. When it is Brian's turn to be served, he says, "Oh, please can I have four sausages, because I won't be having any dinner when I get home!"

Is it true, what Brian says?

Why does he say that?

- One day Aunt Jane came to visit Sally. Now Sally loves her aunt very much, but today she is wearing a new hat; a new hat which Sally thinks is very ugly indeed. Sally thinks her aunt looks silly in it, and much nicer in her old hat. But when Aunt Jane asks Sally "How do you like my new hat?", Sally says, "Oh, it is very nice".

Is it true, what Sally says?

Why does she say that?

- During the war, the Red army captures a member of the Blue army. They want him to tell them where his army's tanks are; they know they are either by the sea or in the mountains. They know the prisoner will not want to tell them, he will want to save his army, and so he will certainly lie to them. The prisoner is very brave and very clever, he will not let them find his tanks. The tanks are really in the mountains. Now when the other side ask him where his tanks are, he says, "They are in the mountains."

Is it true what the prisoner said?

Where will the other army look for his tanks?

Why did the prisoner say that?

- Today, Katy wants to go on the swings in the playground. But to get to the playground she knows she has to pass old Mr. Jones' house. Mr. Jones has a nasty fierce dog, and every time Katy walks past the house the dog jumps up at the gate and barks. It scares Katy awfully, and she hates walking past the house because of the nasty dog. But Katy does so want to play on the swings. Katy's mother asks her, "Do you want to go to the playground?" Katy says, "No".

Is it true what Katy says?

Why does she say she doesn't want to go to the playground, when she so wants to go on the swings that are there?

- Ann's mother has spent a long time cooking Ann's favourite meal; fish and chips. But when she brings it in to Ann, she is watching TV, and she doesn't even look up, or say thank you. Ann's mother is cross, and says, "That's very nice, isn't it? That's what I call politeness!"

Is it true, what Ann's mother says?

Why does she say that?

SCORING SHEET FOR HAPPE STRANGE STORIES

CHILD ID: _____

STORY	T / F	WHY?
William and untidy room		
Hungry Brian		
Aunt Jane and hat		
Red army/Blue army		
Katy and the dog		
Ann and her dinner		

HAPPE STRANGE STORIES

CHILD ID: 3

STORY	T/F	WHY?
William and untidy room	No	Because his room's, it's messier than usual.
Hungry Brian	No	He wants to have four sausages.
Aunt Jane and hat	No	No. In her mind she thinks that hat is rubbish, she likes the old one better.
Red army/Blue army	True somewhere else	When some other people asks him he says he hasn't got any. He says they are in the mountains. Says it so they can't take his tanks.
Katy and the dog	No	This nasty dog that she wants to go and see, her mum asks if she wants to go to the playground and she says no.
Ann and her dinner	No	Ann is not polite and doesn't say thank you when her mum brings chips.

APPENDIX J: ToM MEASURES AND CODING SHEETS (CEREAL BOX, SMARTIES, SOOTY'S LUNCH, ELMER)

Use no _____

Date _____

Name _____

Researcher _____

C: Cereal box (Prediction)

Props: One empty Cereal box; one plain box with cereal. Handpuppet of same sex as child.

Procedure

Look at these two boxes.

1. Pick up the one that you think has cereal in it.

Does it?

Now look in the other one. What's in there?

OK, Close those up and put them back.

Look, here's X. S/he's just woken up and he wants his breakfast.

Child Identifies:

Cereal Box Plain Box

2. Where do you think s/he will look for the cereal?

Cereal Box Plain Box

3. Control: Will s/he find the cereal?

Yes / No

Puppet looks where predicted and leaves.

Case no _____

Date _____

Name _____

Researcher _____

B: Smarties story (Filler)

Props: One Smarties box with smarties; one empty plain box. Handpuppet of same sex as child.

Procedure:

Child Identifies:

Introduce task by saying: "I'm going to show you some (more) things I've brought, and we'll meet some puppets. Okay?"

"Look at these two boxes.

1. Pick up the one that you think has Smarties in it.

Does it?

Now look in the other one. What's in there?"

Smarties Box Plain Box

"OK, Close those up and put them back"

Look, Here's X S/he loves sweets And Smarties are her/his favourites.

(Linda goes to look in Smarties box)

2a. Why do you think s/he's looking in there?

2b. Prompt if child gives no thinking explanation: What does s/he think?

3. Control: Are there Smarties there really?

Yes No

Case No: 23 Sex: _____ Child's date of birth: ____/____/____ Coded by: _____
 Child's name: _____ Date test was given: ____/____/____ Checked by: _____
 Entered by: _____

Sooty's Lunch Coding sheet

1. How does he feel when he gets a pear	0 happy	1 not happy	-99*	SL01	<input type="checkbox"/>
2. Why is he not happy	0 fail	1 pass	-77 -99	SL02	<input type="checkbox"/>
3. How does he feel before opening	0 happy	1 not happy	-99	SL03	<input type="checkbox"/>
4. Why is he not happy	0 fail	1 pass	-77 -99	SL04	<input type="checkbox"/>
5. Before opening, Sooty thinks	0 apple	1 pear	-99	SL05	<input type="checkbox"/>
6. What is in the lunch box?	0 pear	1 apple	-99	SL06	<input type="checkbox"/>
7. After opening, Sooty feels	0 not happy	1 happy	-99	SL07	<input type="checkbox"/>
8. After opening, why does he feel happy	0 fail	1 pass	-77 -99	SL08	<input type="checkbox"/>

Predict false emotion score	0 = fail <u>any</u> of items SL03 or SL01 or SL06 1 = pass <u>all</u> of items SL03 and SL01 and SL06	PreFES	<input type="checkbox"/>
Predict false belief score	0 = fail item SL05 or SL06 1 = pass items SL05 <u>and</u> SL06	PreFBS	<input type="checkbox"/>
Explain false emotion score	-77 = not applicable, because failed SL03 (regardless of answer for SL04) 0 = pass SL03 but failed a control (SL01 and/or SL06) (regardless of answer for SL04) 1 = pass SL03, pass controls (SL01 and SL06), but failed SL04 2 = pass SL03, pass controls (SL01 and SL06) and pass SL04	ExFESoot	<input type="checkbox"/>
Explain true emotion score	-77 = not applicable, because failed SL07 0 = pass SL07 but fail SL08 1 = Pass SL07 and SL08	ExTESoot	<input type="checkbox"/>
Total score Sooty	0 = fail PreFES and PreFBS 1 = pass PreFES only 2 = pass PreFBS only 3 = pass PreFES and PreFBS	TOTSoot	<input type="checkbox"/>

If any score is missing, use -99.

*KEY: -99 = missing -77 = not applicable

Case no _____
Name _____

Date _____
Researcher _____

"Mickey and ^{Eimer}~~Bing~~" (emotion false-belief task)

Props: Mickey Monkey stuffed toy, ^{Eimer the Elephant}~~Bing the Elephant~~, can of coke, carton of milk

I'm going to tell you a story about two friends, Mickey and ^{Eimer}~~Bing~~. Mickey is a very naughty monkey and likes to play tricks on his friend ^{Eimer the Elephant}~~Bing the Elephant~~. ^{Eimer the Elephant}~~Bing the Elephant~~ really likes coke. In fact, it's his very favourite drink. Look! Here is ^{Eimer the Elephant}~~Bing the Elephant~~ can of coke.

1. How does ^{Eimer}~~Bing~~ feel when he drinks a can of coke?

Does he feel happy or not happy? (random)

happy / not happy

2. Why does he feel happy/not happy?

(transcribe from tape)

correct/ incorrect/ uninformative

One day, while ^{Eimer}~~Bing~~ was out on a walk, naughty Mickey the Monkey decided to play a trick on ^{Eimer}~~Bing~~. Now, Mickey knows that ^{Eimer}~~Bing~~ really hates milk. Mickey went to the fridge and got some milk. He poured the coke out of the can (psstsssh) and poured milk into the empty can (psstsssh). Then he put the milk away and went outside to watch ^{Eimer}~~Bing~~ through the window. ^{Eimer}~~Bing~~ comes home and is very thirsty. He sees his coke can on the table but he can't see what's inside the can.

3. When ^{Eimer}~~Bing~~ comes back from his walk and first sees the can, how does he feel?

Is he happy or not happy?

happy / not happy

4. Why is he happy/not happy?

correct/ incorrect/ uninformative

5. What does ^{Eimer}~~Bing~~ think is in the can, coke or milk? (random)

coke / milk

6. What is in this can, coke or milk? (random)

coke / milk

^{Eimer}~~Bing~~ takes a sip from the can. (Eeuuuuch! Yuck! etc.)

7. How does ^{Eimer}~~Bing~~ feel now, after he takes a drink, happy or not happy?

happy / not happy?

8. Why does he feel happy/not happy?

correct/ incorrect/ uninformative

3A - Pass.
Cereal - Pass.

Case No: 23 Sex: _____ Child's date of birth: ____/____/____ Coded by: _____
Child's name: _____ Date test was given: ____/____/____ Checked by: _____
Entered by: _____

Mickey and Pingu Coding sheet

1. How does he feel when he drinks coke	0 not happy	1 happy	-99*	MP01	<input type="checkbox"/>
2. Why is he happy	0 fail	1 pass	-77 -99	MP02	<input type="checkbox"/>
3. Back from walk how does he feel?	0 not happy	1 happy	-99	MP03	<input type="checkbox"/>
4. Why is he happy	0 fail	1 pass	-77 -99	MP04	<input type="checkbox"/>
5. Before drinking, Pingu thinks	0 milk	1 coke	-99	MP05	<input type="checkbox"/>
6. What is in the can?	0 coke	1 milk	-99	MP06	<input type="checkbox"/>
7. After drink, Pingu feels	0 happy	1 not happy	-99	MP07	<input type="checkbox"/>
8. After drink, why does he feel not happy	0 fail	1 pass	-77 -99	MP08	<input type="checkbox"/>

Predict emotion score 0 = fail any of items MP03 or MP06 or MP01 PreFEM ☐
1 = pass all of items 3 and 6 and 1

Predict false belief score 0 = fail item MP05 or MP06 PreFBM ☐
1 = pass item MP05 and MP06

Explain false emotion score -77 = not applicable, because failed MP03 (regardless of answer for MP04)
0 = pass MP03 but failed a control (MP01 and/or MP06) (regardless of answer for MP04)
1 = pass MP03, pass controls (MP01 and MP06), but failed MP04
2 = pass MP03, pass controls (MP01 and MP06) and pass MP04 ExFEMick ☐

Explain true emotion score -77 = not applicable, because failed MP07
0 = pass MP07 but fail MP08
1 = Pass MP07 and MP08 ExTEMick ☐

Total score Mickey & Pingu 0 = fail PreFEM and PreFBM TOTMick ☐
1 = pass PreFEM only
2 = pass PreFBM only
3 = pass PreFEM and PreFBM

If any score is missing, use -99.

*KEY: -99 = missing -77 = not applicable

APPENDIX K: WISC and WPPSI VOCABULARY SCALES

6. Vocabulary



Start
Ages 6–8: Item 5
Ages 9–11: Item 7
Ages 12–16: Item 9



Reverse
Ages 6–16: Score of 0 or 1 on either of the first two items given, administer preceding items in reverse order until two consecutive perfect scores are obtained.



Discontinue
After 5 consecutive scores of 0



Score
Items 1–4: Score 0 or 1 point
Items 5–36: Score 0, 1, or 2 points
See *Administration and Scoring Manual* for sample responses.

Item	Response	Score
1. Car		0 1
2. Flower		0 1
3. Train		0 1
4. Bucket		0 1
† 5. Hat		0 1 2
† 6. Umbrella		0 1 2
7. Clock		0 1 2
8. Cow		0 1 2
9. Thief		0 1 2
10. Bicycle		0 1 2
11. Alphabet		0 1 2
*12. Leave		0 1 2
13. Ancient		0 1 2
14. Pest		0 1 2
15. Brave		0 1 2
16. Obey		0 1 2
17. Island		0 1 2

† If the child does not give a 2-point response, provide the response indicated in the *Administration and Scoring Manual*.

* Responses requiring specific query are identified in the *Administration and Scoring Manual*.

Continue

6. Vocabulary (Continued)

Discontinue after 5 consecutive scores of 0

Item	Response	Score
18. Nonsense		0 1 2
19. Absorb		0 1 2
20. Transparent		0 1 2
*21. Precise		0 1 2
22. Mimic		0 1 2
23. Fable		0 1 2
24. Migrate		0 1 2
25. Rivalry		0 1 2
26. Foresight		0 1 2
27. Seldom		0 1 2
28. Strenuous		0 1 2
29. Unanimous		0 1 2
*30. Imminent		0 1 2
31. Amendment		0 1 2
32. Compel		0 1 2
*33. Affliction		0 1 2
34. Garrulous		0 1 2
35. Dilatory		0 1 2
36. Aberration		0 1 2

* Responses requiring specific query are identified in the *Administration and Scoring Manual*.

Total Raw Score
(Maximum = 68)

WWPSI:

4. Vocabulary



Start
Ages 4-7:
Item 6



Reverse
Score of 0 on either of the first two
items given, administer preceding
items in reverse order until two
consecutive perfect scores are obtained.



Discontinue
After 5 consecutive
scores of 0



Score
Items 1-7: Score 0 or 1 point
Items 8-25: Score 0, 1 or 2 points
See Administration and Scoring
Manual for sample responses.

Item	Response	Score
Picture Items		
1. Car		0 1
2. Clock		0 1
3. Fork		0 1
4. Carrot		0 1
5. Turtle		0 1
Verbal Items		
† 6. Shoe		0 1
† 7. Umbrella		0 1
8. Bicycle		0 1 2
9. Dog		0 1 2
10. Telephone		0 1 2
* 11. Leaf		0 1 2
* 12. Letter		0 1 2
13. Train		0 1 2
14. Sweets		0 1 2
15. Hero		0 1 2
16. Castle		0 1 2
17. Glow		0 1 2
18. Polite		0 1 2
19. Swing		0 1 2
20. Double		0 1 2
21. Holiday		0 1 2
22. Nuisance		0 1 2
23. Ancient		0 1 2
24. Courage		0 1 2
25. Microscope		0 1 2

† If the child does not give a 1-point response, provide the response indicated in the Administration and Scoring Manual.

* Responses requiring specific query are identified in the Administration and Scoring Manual.

Total Raw Score
(Maximum = 43)

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APPENDIX L: STUDY 4: ASSOCIATIONS BETWEEN CHILDREN'S RELATIONSHIP-SPECIFIC USE OF AFFECT WORDS AND ToM SKILLS

7.0 Overview

The link between language and ToM is well established (for example, Happé, 1995; Jenkins and Astington, 1996; Astington and Baird, 2005) and the relationship between communicative experiences, within close dyadic relationships and the development of understanding of emotion and mind has also been explored (Dunn and Brophy, 2005). Research on children's emotion understanding has rarely been relationship-specific. A possible relationship-specific use of language, particularly that relating to emotions (both negative and positive) and the development of ToM is less well established. The question therefore of *how* precisely language contributes to the understanding of mind *and* vice versa still needs some clarification.

Dunn and Brophy (2005) examined whether conversation matters for the early development of ToM and what aspects of these conversational experiences are implicated. The literature has been extensively reviewed in Chapter 1 of this thesis. These questions arise out of the finding that there are clearly individual differences in children's grasp of ToM, and these are marked by the third and fourth years of life. Wellman, Cross & Watson's (2001) meta-analysis clearly demonstrates that there is a consistency across studies in research on the non-clinical course of the achievement of success on ToM skills, with all children "passing" false-belief tasks by the age of 4-5 years. There is also clearly a group of children who pass these tasks early, and the precursors for this are not yet as

well understood. One, previously cited, precursor is security of attachment. Another possible precursor is children's conversational and narrative skills

In Milligan, Astington & Dack's (2007) meta-analysis of the relation between language ability and false-belief understanding, they reviewed the standardized inventories and experimental tasks used for measuring language ability. The vast majority of the 104 studies reviewed in this meta-analysis used a measure of receptive or general language ability, for example the Peabody Picture Vocabulary Test or the British Picture Vocabulary Scale. A few, including the MacArthur Communicative Development Inventory for Toddlers (e.g., Watson, Painter, & Bornstein, 2001) look at the use of 'mental terms'. That is, the set of terms that refers to mental states of belief, desire, intention, emotion, and perception. In the literature, "mental terms" has been used also to refer to just cognitive terms (e.g., think, know, guess, remember). Children's use of cognitive terms, as well as mental terms more generally, has been shown to correlate with false-belief task performance both concurrently and across time. This is found, for example, in conversation with friends in the context of pretend play (Hughes & Dunn, 1998), and in conversations with mothers while looking at photographs (Ruffman et al., 2002). Child and parent use of mental terms are related, and research on conversation has often focused on the effect of parent's language on children's development of false-belief understanding. Given the relationship between parent and child use of mental terms, it was considered relevant in the context of the findings in the previous studies in this thesis, to make an attempt to understand how children's specific use of language with respect to key figures might relate to their ToM skills, attachment-representations and language ability.

Studies of children who grew up in families where there was discussion about mental states and feelings, and who actively participated in this type of talk, have shown that over time children performed more successfully on assessments

of understanding mind and emotion (for example, Dunn, Brown, Slomkowski, et. al., 1991; Garner, Jones, Gaddy, & Rennie, 1997; Hughes & Dunn, 1997). These studies have been discussed in some detail in Chapter 1. Does it therefore follow that those children who have had more conversations about feelings specifically with mother will go on to have greater understanding of mind and emotion, successfully passing ToM tasks at an earlier age? Moreover, is this then reflected in their discourse when talking about their key relationships, such that they will use more ‘affect terms’ reflecting both positive and negative emotion, when talking about mother compared with other key relationships?

7.1 Aims of the study

The aim of this study is to examine whether children who have a better understanding of emotion and mind might also have a greater use, and access to, affective language with respect to one key attachment figure. In this case, it is hypothesized that those children who use more ‘affect terms’ reflecting emotion (both positive and negative) with respect to their mother, will have better understanding of ToM, and that the same relationship will not exist with respect to their use of affective language about a teacher, or friend, or even self, and ToM skills. Given the significance of the relationship, it is hypothesised that children will participate in more discourse that explicitly refers to inner states with their key attachment figure – usually their mother – than with any other significant person.

The primary aim of this final, small-scale study in the present thesis is to look beyond the somewhat crude relationship between children’s attachment-related representations and ToM and to try and tease out possible relationship-specific use of affect terms in order to better the understanding of the relationship between attachment, mentalization and theory of mind. This is just a

preliminary step which, if it produces interesting findings, may be suggestive of the need for a larger study concerning the question of relationship-specific use of language with respect to its affective content.

This study examines intra-individual differences in terms of mentalizing and particularly looks at the amount of affect terms that individual children use in relation to specific significant others; in this case, a friend, teacher and parent. It then looks at individual differences with respect to these children's mentalizing skills (i.e., their ToM). The study also examines whether there are intra-individual differences with respect to the amount and type (positive or negative) of affect terms used with respect to e.g., mother compared with friend. In examining children's discourse to the prompts involving three different people, this permits an exploration of whether children's ability to represent and understand another's thoughts and feelings is a function of the quality of the relationship with that individual or, alternatively, a more general characteristic of the child that is expressed similarly across relationship contexts. This type of study has been carried out with an adolescent population (O'Connor & Hirsch, 1999), but not with younger children. Through this type of study, it may be possible to begin to elucidate any association between relationship-specific representations and mental state understanding in pre-school and primary aged children.

7.2 Method

One method for assessing children's ability to use internal-state terms is to check whether they can talk about non-present experiences (Bretherton & Beeghly 1982). If, for example, a child in this study can talk about his mum being angry and himself being upset if he leaves his school bag at school, he can talk about anticipatory feelings. Where a child is able to identify a feeling in themselves or

other this is taken as evidence of some understanding of internal states. However, a note of caution here, the study has only analysed use of emotion understanding words vs. descriptive words with respect to specific figures in the child's life. A future study with a larger sample would need to be designed to elicit and analyse more detailed categories of children's discourse with respect to these figures.

7.2.1 Ethical Consent Procedures

Consent for the study was obtained from the Guy's Research Ethics Committee (99/09/05) and is given in Appendix A. As modifications were made to the initial study, renewed consent was obtained.

7.2.2 Participants

A randomly selected group of 27 children were interviewed for this study from reception, year 1 and year 2 of an inner London primary school. All of the children selected had already participated in previous studies in this thesis as this was necessary for the purposes of data analysis with previously collected variable data (such as ToM scores). Ages of participants ranged from 47 months (3 years 11 months) to 86 months (7 years 2 months), the mean age being 59 months (4 years 11 months). The children belonged, for the most part, to families in a low socio-economic group and represented the ethnic diversity of the inner London catchment area. Out of the 27, transcripts, 16 were selected for analysis. The reason for this being that this group had taken part in the more recent Study 2, and therefore there was the most recent data available on the other important variables, i.e., ToM, attachment representations, peer popularity and language ability.

7.2.3 Measures

Developing a structured interview was a way of avoiding the pitfalls of the narrative story stem measure. They were designed to elicit children's verbal accounts of their key relationships. The vignettes given to each child were based on O'Connor's vignette-based, semi-structured interview which he used with adolescents, but which was modified to be used with young children (O'Connor and Hirsch, 1999). The vignettes presented to each child were deliberately simple in design, in order to try to elicit a response from the younger children. They were divided into the following categories: two positive, two negative and two neutral. Vignettes were designed to elicit talk about four key people: self, mum, friend and teacher. It was important to include a range of situations in order that an adequate sample of mentalizing was collected.

Example of Positive vignette about mum:

"One day (name of child interviewed) comes home from school and s/he tells his mum that he has received a gold star for good work that day".

Prompt: "What does his mum say?"

Prompt 2: "How does his mum feel?"

Prompt 3: "How does (name of child) feel?"

Prompt 4: "What happens next?"

Example of Negative vignette about teacher:

"(Name of child) arrives at school one day and realises that s/he has left his homework at home."

Prompt 1: “What does his teacher say?”

Prompt 2: “How does his teacher feel?”

Prompt 3: “How does (name of child) feel?”

Prompt 4: “What happens next?”

Each of the children were interviewed individually in a quiet room following a few minutes conversation, during which the child's age, name and a few other details were elicited. Each child had taken part in the previous year's study and the majority of children remembered the interviewer. Following the child's response to each vignette (e.g., happy, sad), the interviewer asked the child “Why?” If this query or two further probes were not successful in eliciting information, the interviewer proceeded to the next vignette. The child was given a series of prompts designed to elicit information about the way that the character in the story would feel and behave. The children were not given a choice of adjectives if the vignette failed to elicit an emotion understanding response word. The aim was to distinguish those children who gave a response which indicated an understanding of internal states, from those who gave a more descriptive, often behaviour-focused response. The vignettes each child was given contained a dilemma designed to elicit internal state language regarding specific individuals; mum, dad, teacher and friend. The prompts were designed to ascertain if the same child would use different language or more or less internal state language with respect to specific individuals. In other words, to look at if there are intra-individual differences with respect to internal state language. As the children taking part in this study were relatively young, it was anticipated that the structured vignettes would be a necessary tool to access any cognitions in relation to significant figures, as open ended questions might not yield a great deal of conversation from the children. Interviews were transcribed verbatim and content analysed for use of affect words.

In addition to these vignettes, the children were also asked to choose from a wide selection of animal figures; the ones that best represented their mother, friend, teacher and self. This was used as an additional neutral prompt to look at the number of descriptive versus emotion words used about each individual.,

7.3 Hypotheses

H1. *It is hypothesized that children who use more emotion words will perform better on ToM tasks.*

H2. *It is hypothesized that children who use more emotion words (both positive and negative) specifically with respect to their mother, will have better understanding of ToM.*

7.4 Results

Frequency counts demonstrated that the total number of affect words used by children is not related to the overall total number of words spoken. Spearman's $\rho = 0.56$, $p > .05$.

Using both Pearson's and Spearman's correlations, age and affect words were not significantly correlated. Similarly, taking the overall number of affect words there were no correlations with any of the key variables (ToM, Verbal IQ, attachment representations).

There were no differences between boys and girls either on the number of words spoken or the number of affect words used.

As expected, there was a significant correlation between use verbal IQ and performance on both ToM ($r = .61$, $N=16$, $p < 0.01$) and emotion understanding tasks ($r = .61$, $N=16$, $p < 0.01$).

7.5 Results in relation to the hypotheses

H1. *It is hypothesized that children who use more emotion words will perform better on ToM tasks.*

Bivariate correlations between the total number of negative affect words and performance on both emotion understanding ($r = .5$, $N=16$, $p = .054$) and composite false belief and emotion understanding ToM tasks ($r = .46$, $N=16$, $p = 0.75$) showed a non significant trend.

H2. *It is hypothesized that those children who use more emotion words (both positive and negative) specifically with respect to their mother, will have better understanding of ToM.*

Initially, data was divided into groups and analysed according to high number and low number of emotion words about mum and others. There was a significant difference between the two groups on ToM skills ($F = 4.91$, $p < .04$). The same relationship was then analysed using continuous data.

There was no significant correlation between positive affect words used in relation to mum and performance on ToM tasks. There were also no significant correlations between positive affect for mum and other variables (attachment representations, verbal IQ).

For negative affect about mum and performance on emotion understanding ToM tasks, there was a non-significant trend ($r = .06$, $N=16$, $p = .071$).

When possible associations with the other main variables were analysed, there were no significant correlations, e.g., between use of emotion words about mum and attachment representations.

7.6 Discussion

Although this small scale study did not reveal any significant findings, it nevertheless raises some interesting points for discussion and future research. Firstly, it is worth noting that there are clear individual differences in the frequency of children's use of affect words, irrespective of how much they talk generally. Indeed, some of the more verbose children with a high frequency count of number of words used, had a low count for the number of affect words, both overall and specifically for mum. Conversely, some children with a low frequency count for number of total words spoken, had a high count of affect words, both for others and for mum. There were no significant differences in children's talk in the amount of negative and positive affect words used for mum, although children used significantly more negative than positive affect words in their talk about others.

The non-significant trend for correlations between total number of negative affect words and performance on both emotion understanding ToM tasks, and with composite ToM tasks, suggests it would be useful to carry out a similar study using a larger cohort of children. Similarly, for the non-significant trend between negative affect about mum and performance on emotion understanding ToM tasks.

Although these are non significant findings, the trend allows a reflection that these results may offer very tentative support for Lagattuta and Wellman's

(2002) work on parent-child talk about past experiences. They found that it was particularly that discourse which involved talking about past experiences involving negative emotions which produced discussion about understanding mental states and mind-emotion connections. A more recent paper by Laible (2011) presented similar data, where conversation with mother about negative experience was related to mental state understanding in children one year on. Clearly larger samples are needed to address fully the key questions addressed here.

Studies of children in real-life interactions with both family members and friends clearly provide a much richer source of data on the precise nature of children's discourse involving both mental state understanding and discussion about emotions (e.g., Dunn et al., 1991). The trends in the present study suggest that it may be worth looking at the precise nature of the affect words used by children particularly in relation to their mothers, and how these relate to ToM performance. Only a longitudinal study examining this type of discourse in the early years and evaluating children on ToM skills at a later date could then lend further support for the assertion that early participation in discourse about inner states is linked to later success on ToM. The present study suggests that it would be well worth re-examining this question, but specifically in relation to the quality and type of early discourse with and about mother.

